THE IMPACT OF ASSET SPECIFICITY ON OUTSOURCING PERFORMANCE: A DISAGGREGATED ANALYSIS BY BUYER-SUPPLIER ASSET SPECIFICITY DIMENSIONS

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ABSTRACT

Although much research has been done on both asset specificity and outsourcing performance, most of the former has focused on the question of governance choice, while the latter has mainly concentrated on the skills required in managing the buyer-supplier relationship, leaving a glaring gap on the role that asset specific, non-redeployable investments made by either buyers or suppliers, could play in determining the success or otherwise of outsourcing relationships (which for the purpose of this thesis, the author defines as relationships characterised by the relocation to external providers of company functions previously performed in-house).

This thesis attempts to begin to fill this gap by empirically investigating the impact of asset specificity on outsourcing performance within a disaggregated methodological framework that allows the author to discern the specific effects of various individual dimensions of buyer-supplier asset specific investments. To this end, data were collected by means of self-administered questionnaires sent to a randomly selected sample of UK firms operating in four different service-related industries. Employing both exploratory factor analysis and hierarchical regression analysis, hypotheses on the relationship in question developed from the twin lenses of transaction cost theory (TCT) and the strategy-based literature were tested.

The results suggest that whilst all dimensions of buyers' asset specificity have a negative impact on outsourcing performance, the effect of suppliers' asset specific investments on outsourcing performance varies according to the asset specificity dimension examined. In addition, buyer-supplier 'reciprocal specific investments' are found to exert a positive effect on outsourcing performance while 'trust- and information-based collaborative ties', though found to have a direct and positive impact on outsourcing performance, do not seem to play a statistically significant moderating effect on the relationship in question. These findings have profound theoretical and methodological implications, and are also of significance from a managerial perspective.

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CHAPTER ONE: INTRODUCTION

1.1 Chapter overview

This introductory chapter begins by providing a brief overview of the context of this study and its academic background. In so doing, a clear research gap will be highlighted. Then, the main research question to be addressed in the thesis alongside the associated objectives of the research will be specified while clarifying the theoretical boundaries of the study. The chapter ends with a brief outline of the structure of the thesis.

1.2 Context, academic background and knowledge gap

Over the last two decades, outsourcing has emerged as a critical competitive strategy that has placed the make-or-buy decision at the top of management priorities (Kakabadse and Kakabadse, 2000). Survey evidence suggests that by 1998, around 85 per cent of European and American companies were engaged in some sort of outsourcing (Elmuti *et al.*, 1998). This growing trend towards the adoption of outsourcing appears to have been mainly driven by a change in the environmental conditions in which businesses are operating; conditions primarily characterised by an increased level of global competition (Embleton and Wright, 1998) and rapid technological growth (Razzaque and Sheng, 1998). These environmental developments have forced firms to demonstrate greater flexibility and responsiveness to customer needs and, consequently, to increasingly engage in outsourcing relationships with specialist suppliers (McIvor, 2005).

Prima facie, outsourcing appears to offer a number of potential benefits which can ultimately provide organisations with the opportunity to enhance their competitive positions. First, outsourcing can help organisations realise substantial reductions in operational costs by benefiting from the

economies of scales that are usually achieved by specialist outsourcing suppliers and often passed on to outsourcing buyers (Jurison, 1995; Sharpe, 1997). Second, outsourcing may enable organisations to gain access to external suppliers' specialised knowledge and expertise, and to ultimately benefit from 'best in the world' skills and technologies (Bartell, 1998; Blumberg, 1998; Lankford and Parsa, 1999; Quinn, 1999; Kakabadse and Kakabadse, 2000). Third, outsourcing can also be beneficial in terms of freeing up management time and resources, hence allowing chief executives to focus on their core functions and on achieving key strategic objectives (Lacity, 1993; Kliem, 1999). This enhanced concentration on core activities is said to improve the quality of the service offered by firms and to enhance their flexibility in responding to increasingly volatile market conditions (Razzaque and Sheng, 1998; Canez *et al.*, 2000).

Nevertheless, outsourcing seems to have failed to deliver its expected benefits, with a growing number of companies having had the need to bring back their outsourced activities in-house (Elliot, 1995; Kliem, 1999). For example, according to McIvor (2000, p. 22) *"a PA Consulting Group found that only 5% of companies surveyed had achieved high levels of benefits from outsourcing"*. In a similar vein, both Lonsdale (1999) and Kakabadse and Kakabadse (2000) drew attention to the fact that the majority of managers were unhappy with the outcomes of their outsourcing projects. This was later confirmed by Jennings (2002) who found failure to realise cost benefits to be a recurring problem in outsourcing relationships.

In fact, in sharp contrast to the optimistic coverage of the literature in relation to the benefits of outsourcing, many academics have detected a number of drawbacks and several potential risks. The first of these risks is the loss of critical skills and the consequent handing-over of the firm's competencies to outsourcing suppliers who can become potential competitors by exerting a forward integration in the market (Bettis *et al.*, 1992; Welch and Nayak, 1992; Benson and Litter, 2002). Another noticeable risk is the creation of a supplier-dependence situation and the

subsequent danger of hold-up. Other risks include the loss of quality control (Downey, 1995), the appearance of hidden costs (Willcocks and Currie, 1997), and reduced innovation (Kotabe, 1992).

The growing prominence of outsourcing together with the increase in the number of outsourcing failures (defined as the inability of outsourcing relationships to realise expected outcomes) creates a paradox which introduces a pressing need for academics to place greater emphasis on the still under-researched study of the determinants of outsourcing performance.

Transaction cost theory (henceforth TCT) has arguably emerged as the dominant framework to illuminate on the logic behind companies' make-or-buy decision (Wang, 2002). Developed primarily by Williamson (1971, 1975, 1985), in a nutshell, TCT posits that under buyer-supplier relationship conditions of high asset specificity (non re-deployable investments in assets specifically dedicated to the relationship), the higher transaction costs to be incurred to safeguard against costly opportunistic behaviour make vertical integration, rather than outsourcing, the most efficient and, hence, the preferred governance structure.

Whilst the cost explanation for companies' boundary choice (e.g. organisation of firm activities within the firm) versus governance through market transactions (e.g. outsourcing) has been widely investigated receiving considerable empirical support (see, among others, Anderson and Coughlan, 1987; Anderson and Schmittlein, 1984; Klein *et al.*, 1990; Levy, 1985; Masten, 1984; Monteverde and Teece, 1982), the TCT's implication in relation to outsourcing performance under conditions of high asset specificity in buyer-supplier relationships has rarely been subjected to empirical scrutiny. This is particularly striking when it is considered that although factors influencing the make-or-buy decision are of great significance, of no less importance and, possibly, of greater relevance is the question of what happens to those companies that do choose to outsource under conditions of high asset specificity. Given the well

publicised difficulties to realise the expected benefits of outsourcing projects, this further line of inquiry seems particularly timely.

Although this line of enquiry is primarily rooted in the TCT's explanation of outsourcing, the strategy-related literature[1], through its competence rationale, could also be useful in illuminating on the relationship between asset specificity and outsourcing performance. In general terms, this literature argues that firms consist of a bundle of competencies that are created and nurtured through a number of processes including learning, knowledge promotion, inter-personal relations, and the like. While we know little as to when such processes could best take place in separate firms (e.g. outsourcing relationships involving the interaction of a buyer and a supplier) or in one firm (e.g. vertical integration) (Williamson, 1999), the knowledge creation reasoning does offer a valuable insight into the relationship between asset specificity and outsourcing performance at least by brining into the equation the role of *knowledge-based considerations* and *inter-firm collaboration* which could overcome or at least reduce the likelihood of opportunistic expropriation (see for example, Hill, 1990; Zajac and Olsen, 1993; Conner and Prahalad, 1996; Argyres and Liebeskind, 1999).

The few studies that have considered the question of the extent to which the performance of buyer-supplier relationships is affected by non re-deployable investments specifically dedicated to the relationship (Artz, 1999; Heide and Stump, 1995; Poppo and Zenger, 1998; Rodriquez and Padilla, 2005; Wang, 2002) have produced mixed results from which it is difficult to discern a conventional wisdom. These studies also brought to the fore a number of unresolved methodological and measurement issues that constitute gaps in the analysis of the relationship in question.

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[1] For the propose of this thesis, the strategy-related literature is used as a nomenclature referring to the various strands of the strategy literature (as opposed to the economic-based literature) including the resource-based view, knowledge management, intra- and inter-organisational learning, and the competence / capability perspective.

In this thesis the author aims to address these issues. Specifically, this study intends to contribute to this literature and, therefore, add to what has gone before, in the following ways.

First, in previous contributions the *buyer-supplier transactional relationship* was too loosely defined (Artz, 1999; Heide and Stump, 1995), thus failing to distinguish between transactions that involve the mere procurement of raw materials and/or intermediary inputs, and those which actually entail the relocation to external providers of company functions previously performed in-house (which – given the purpose of this thesis – is how the author defines the *buyer-supplier outsourcing relationship*). The research design of this study enables the author to focus exclusive empirical attention on the latter. The only studies that have specifically investigated the effects of asset specificity on outsourcing performance in the context of a buyer-supplier relationship thus defined (Poppo and Zenger, 1998; Wang, 2002; Rodriguez and Padilla, 2005), did not differentiate between buyers and suppliers nor did they disaggregate data according to asset specificity dimensions.

Although non re-deployable investments specifically dedicated to a given relationship can be incurred by both parties, with three notable exceptions (Artz, 1999; Heide and John, 1990[2]; and Heide and Stump, 1995), extant empirical investigations have only measured the asset specificity content of investments made by one side of the dyad, (i.e. the buyer or the supplier, see Poppo and Zenger, 1998; Levy, 1985; Monteverde and Teece, 1982; Wang, 2002). While Heide and John (1992) made a clear distinction between buyers and suppliers' asset specificity and obtained data from both sides, they only investigated the impact of buyers' asset specificity on buyers' control over suppliers' decisions. In this study, the author measures the impact of asset specificity on outsourcing performance while distinguishing between the effects pertaining to specific, non re-deployable investments made by both buyers and suppliers.

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[2] It should be noted, however, that Heide and John (1990) looked at the extent of reciprocity of buyers-suppliers' asset specific investments, without looking precisely at outsourcing performance.

An additional issue faced by the few studies that have attempted to test the relationship between asset specificity and outsourcing performance, has been the actual measurement of the asset specificity concept. Morill and Morill (2003) argued that such a construct is not directly observable, requiring the use of multiple indicators, while Wang (2002) attributes the inconsistencies emerging from the empirical findings to the differing operationalisations of the construct. Yet, as early as 1985, Anderson called for a more consistent and comprehensive scale development in an effort to reach a better approximation of the construct's multi-dimensional nature. This has later been reiterated by Lohtia *et al.* (1994) who suggested that research results based on TCT may vary according to the specific dimension of asset specificity. Indeed, as will be thoroughly explained in later chapters, asset specific investments can be classified into different individual dimensions according to the nature of the investment.

Though few authors have attempted to inform the asset specificity scale development from items related to more than a single dimension of specificity (Klein *et al.*, 1990; Levy, 1985; Zaheer and Venkatraman, 1995), with the exception of Masten *et al.* (1989) and Maltz (1993) (who did not test effects on outsourcing performance), they all still end up with the estimation of a single, albeit composite, asset specificity coefficient. In this study, the author goes a step further, by testing the impact of asset specificity on outsourcing performance on the basis of a wide menu of distinct dimensions of specific, non re-deployable investments made by both buyers and suppliers while also taking into account the effect of reciprocal investments (measured by the interaction terms of the buyers and suppliers' asset specificity dimensions). Special attention is also paid to the potential moderating role of collaborative ties while controlling for the effect of firm size, type of activity / function being outsourced, and (service-sector) industry type.

To sum up, to the best of the author's knowledge, this is the first attempt that sets out to empirically investigate the impact of asset specificity on outsourcing performance within a disaggregated framework that allows to

distinguish the individual effects pertaining to both buyers and suppliers' various dimensions of asset specific investments in outsourcing relationships (see Table 1.1). In so doing, this study directly addresses Lohtia's *et al.* (1994) call for researchers to pay particular attention to the individual dimensions of asset specificity.

> *"To date, research has treated it* [asset specificity] *as a unidimensional construct. Future empirical operationalisations should consider its different dimensions...The theoretical ramifications of each of the dimensions and types of transaction-specific assets require research attention. It may be that research results based on TCE will be dependent on the specific type or dimension of the transaction-specific asset used in the research setting"* (Lohtia *et al.*, 1994, p. 267-268).

Table 1.1: Classification of key empirical studies on the impact of asset specificity on the performance of buyer-supplier relationships.

Studies	Definition of buyer-supplier relationship		Asset specificity (AS) operationalisation			Moderator variable	Control variables			Geographical context	Targeted industry
	Outsourcing-focused relationship	Broad relationship	Buyer-supplier differentiation	Operationalisation of various AS dimensions	Consideration of the reciprocal investments effect	Collaborative ties / relational norms	Firm size	Industry type	Types of activity being outsourced		
Heide & John (1990)		X	X		X					U.S.A	Three manufacturing – related industries
Heide & John (1992)		X	X			X				U.S.A	Three manufacturing-related industries
Heide & Stump (1995)		X	X							U.S.A	Three manufacturing-related industries
Poppo & Zenger (1998)	X						X			U.S.A & Canada	Manufacturing, service, and financial industries
Artz (1999)		X	X		X					U.S.A	Four manufacturing-related industries
Wang (2002)	X									Taiwan	Manufacturing, service, and financial industries
Rodriguez & Padilla (2005)	X									Canary Islands	Hotel industry
This Thesis	X		X	X	X	X	X	X	X	UK	Four service-related industries

1.3 Statement of the main research question and associated research objectives

Given the knowledge gap in relation to the predictive power of TCT when applied to the question of the effect of asset specificity on outsourcing performance, the main question which this research aims to answer is: *What is the impact of buyer-supplier dimensions of asset specific investments on outsourcing performance?*

In order to answer the main research question, this thesis begins by offering a synthesis of an extensive critical review of relevant literature carried out to: (i) map the theoretical and empirical research on outsourcing; (ii) distil a number of theory-based hypotheses regarding the relationship between asset specificity and outsourcing performance; and (iii) develop an empirical framework through which the main constructs of the research will be operationalised and tested.

The main research objectives of this thesis are as follows:

(i) To empirically assess the effect of the various buyers' asset specificity dimensions on outsourcing performance;

(ii) To empirically assess the effect of the various suppliers' asset specificity dimensions on outsourcing performance;

(iii) To examine the impact of reciprocal investments (measured through the interaction terms of buyers and suppliers' asset specificity dimensions) on outsourcing performance;

(iv) To establish whether collaborative ties have a moderating effect on the relationship between asset specificity and outsourcing performance.

The above objectives are to be met while controlling for the role of firm size, type of activity / function being outsourced, and service-sector industry type.

Finally, relevant implications for theory, for empirical work and for managerial practice will be drawn.

1.4 Clarification of the theoretical boundaries of the study

Rather than focusing on the potential opportunistic expropriation that could stem from a high level of asset specificity, a growing literature in strategy (e.g. Teece, 1986; Liebeskind, 1996) argues that the make-or-buy decision is actually dictated by the risk of knowledge leakages that could take place in the market and the consequent necessity to protect such knowledge through internalisation. Nevertheless, while acknowledging the value added by this growing stream of strategy-related literature, it should be noted that the investigation conducted in this thesis is specifically concerned with the impact of asset specificity on outsourcing performance and, therefore, it draws from the strategy-related literature only as a framework informing the asset specificity-outsourcing performance relationship and not as an alternative explanation regarding the reason behind firms' decision to internalise. Since the notion of asset specificity with its link to opportunistic behaviour is firmly rooted within TCT rather than the strategy-related literature, the theoretical backbone, and implications of this thesis are, inevitably, more related to the former.

1.5 Structure of the thesis

This study tries to empirically assess the impact of asset specificity upon outsourcing performance using data collected by means of a self-administered questionnaire that was sent to a large sample of UK firms

operating in four different service-related industries (hotel, telecommunication, IT and banking industry).

Chapter two maps the outsourcing literature and carries out an extensive measurement-comparison review of the operationalisation of the research main constructs, namely: (i) asset specificity; and (ii) outsourcing performance.

Chapter three offers a critical review of the literature that dealt with the relationship between asset specificity and outsourcing performance and concludes by formulating the research model which comprises several hypotheses to be tested during the course of this research.

Chapter four discusses the methodology employed in collecting the data (questionnaire preparation and administration) and in conducting the empirical investigation (factor and regression analysis), explains how the hypotheses are tested, and presents the measurement scales employed in collecting the required data.

Chapter five carries out the initial screening of the data collected and offers some exploratory data analysis, including a number of descriptive statistics regarding key variables. An extended note on the reliability and validity of the measurement scales employed in this study is also provided towards the end of the chapter.

Chapter six reports the statistical results obtained using hierarchical regression analysis, interprets the findings (also in relation to those obtained by previous studies), and provides an insightful discussion of their significance.

Chapter seven concludes by summarising the key research findings and by highlighting their implications from a theoretical, methodological and managerial perspective. After emphasising the contribution to knowledge

this thesis makes, the limitations of the study are acknowledged and valuable directions for future research avenues are outlined.

CHAPTER TWO: A CRITICAL REVIEW OF OUTSOURCING THEORY AND THE EMPIRICAL LITERATURE

2.1 Chapter overview

The purpose of this chapter is to critically review the theoretical and empirical literature on outsourcing. After a brief discussion of outsourcing definitions, the chapter begins by mapping and assessing the outsourcing intellectual territory in an attempt to synthesise and integrate different strands of outsourcing research and findings. Following the identification of a number of empirical gaps in the outsourcing literature, attention is then directed to the asset specificity construct through a discussion of its various definitions and a critical assessment of its operationalisation as articulated in past empirical studies. The chapter ends with a brief review that summarises and integrates various measurements of outsourcing performance.

2.2 Mapping the outsourcing literature

Outsourcing practice has been described by De Vita and Wang (2006, p. 14) as *"a phenomenon in motion"* that has evolved at a great pace. To the author, it appears that the velocity by which outsourcing research has developed has left little opportunity for researchers to step back, reflect on what has been done and draw up an integrated picture of the various streams underpinning the research activities undertaken in the field. Indeed, aside from few exceptions (eg. Lee *et al.*, 2000) researchers have to date made no attempts to organise and integrate the various outsourcing studies from a broad perspective. As noted by Razzaque and Sheng (1998, p. 89) although outsourcing is a subject that is growing in popularity among practitioners and researchers alike, *"efforts to organise it* [this wide literature coverage] *in an*

integrated broad-based body of knowledge have so far been limited". Lack of rigorous mapping of this large body of work means that this literature may face the threat of becoming *'a schizophrenic compendium'* of unrelated research papers with no common language by which academics in the field can communicate with one another (Robey, 1996, p. 402). Thus, in an attempt to introduce some tidiness to what sees to be, at first glance, a research area with no coherent focus (Cheon *et al.,* 1995), this section tries to develop a taxonomy of outsourcing literature that provides a holistic synthesis of various research streams.

To accomplish this remit, an extensive review has been conducted. A closer examination of the various research foci and different research approaches employed by the various studies reveals the existence of two broad categories into which the outsourcing literature can be classified, these being *the process-oriented literature* and *the outcome-oriented literature.* While the former refers to academic papers that concentrate on the outsourcing process, the latter concerns studies that focus upon outsourcing performance. In line with the method adopted by Ellram and Carr (1994), both categories have been divided into empirical and conceptual research according to the methodology employed by the studies reviewed (see Table 2.1). While conceptual research usually includes descriptive guidelines and conceptual frameworks (Meredith, 1993), empirical research involves *"soliciting participation and data gathering"* (Gagnon, 1982, p. 98).

Table 2.1: A Classification of the outsourcing literature

Outsourcing related literature

Author(s)	Outsourcing literature: Process-oriented literature: Conceptual: Why	Conceptual: What	Conceptual: How	Empirical: Outsourcing determinants	Empirical: Effect of A.S on outsourcing extent	Outcome-oriented literature: Conceptual: Economic outcome	Conceptual: Strategic outcome	Empirical: Partnership	Empirical: Specificity	Empirical: Outsourcing Level	Outsourcing function: IT	Outsourcing function: Others	Main Theory: TCT	Main Theory: Others
Reve (1990)	✓						✓							
Due (1992)			✓									✓		
Bettis *et al.* (1992)	✓						✓					✓		✓
Welch & Nayak (1992)		✓										✓		✓
Venkatesan (1992)		✓										✓		✓
Loh & Venkatraman (1992a)				✓		✓					✓			✓
Loh & Venkatraman (1992b)				✓							✓			✓
Aerston (1993)	✓											✓	✓	
Huber (1993)						✓	✓					✓		✓
Loh (1994)					✓						✓		✓	
Zaheer & Venkatraman (1994)					✓							✓	✓	
Quinn & Hilmer (1995)	✓		✓				✓					✓	✓	✓
Cheon *et al.* (1995)	✓										✓		✓	✓
Jurison (1995)	✓		✓								✓		✓	
Cronk & Sharp (1995)		✓	✓								✓			na
Cross (1995)						✓	✓					✓		✓
Lacity & Willcocks (1995)											✓			na
Murray & Kotabe ((1995)								✓				na	✓	
Sobol & Apte (1995)				✓							✓			na
Teng *et al.* (1995)				✓							✓			✓
Slaughter & Ang (1996)				✓							✓			✓
Nelson *et al.* (1996)					✓						✓		✓	
Chesbrough & Teece (1996)		✓										✓		✓
Khosrowpour & Subramanian (1996)			✓								✓			✓
Aubert *et al.* (1996)					✓						✓		✓	
Nam *et al.* (1996)					✓						✓		✓	
Grover *et al.* (1996)								✓			✓		✓	✓
Earl (1996)	✓										✓			
Venkatraman (1997)		✓									✓			✓

Table 2.1: A Classification of the outsourcing literature *(Continued)*

Outsourcing related literature

Author(s)	Outsourcing literature										Outsourcing function		Main Theory	
	Process-oriented literature					Outcome-oriented literature								
	Conceptual			*Empirical*		*Conceptual*		*Empirical*						
	Why	What	How	Outsourcing determinants	Effect of A.S on outsourcing extent	Economic outcome	Strategic outcome	Partnership	Specificty	Outsourcing Level	*IT*	*Others*	*TCT*	*Others*
Ang & Cummings (1997)					✓						✓		✓	
McIvor *et al.* (1997)		✓										✓		✓
Bowman & Faulkner (1997)		✓										✓		✓
Saunders et al. (1997)								✓			✓			na
Hu *et al.* (1997)				✓							✓			✓
Lever (1997)										✓		✓		
Smith *et al.* (1998)				✓							✓			✓
Ang & Straub (1998)				✓							✓		✓	
Poppo & Zenger (1998)					✓				✓		✓		✓	
Duncan (1998)	✓										✓		✓	✓
Bartell (1998)			✓								✓			
Embleton & Wright (1998)			✓									✓		✓
Di Romualdo & Gurbaxani (1998)							✓							
Aubert *et al*. (1998)											✓			✓
Elmuti *et al.* (1998)						✓	✓							
Lacity & Willcocks (1998)				✓				✓			✓			na
Lorenzoni & Lipparini (1999)	✓						✓							✓
Lee & Kim (1999)								✓			✓			✓
Mol & Gedajlovic (2001)									✓			na	✓	
Lankford & Parsa (1999)			✓									✓		
Quinn (1999)	✓		✓								✓			✓
Vining & Globerman (1999)			✓									✓		
Patterson & Haas (1999)							✓							
Elmuti & Katahwala (2000)			✓									✓		✓
Kakabadse & Kakabadse (2000)	✓		✓			✓	✓					✓	✓	✓
King & Malhotra (2000)						✓	✓				✓			na
Gilley & Rasheed (2000)										✓		✓		✓
Fill & Visser (2000)	✓	✓										✓	✓	✓

Table 2.1: A Classification of the outsourcing literature *(Continued)*

Outsourcing related literature

Author(s)	Outsourcing literature										Outsourcing function		Main Theory	
	Process-oriented literature					Outcome-oriented literature								
	Conceptual			*Empirical*		*Conceptual*		*Empirical*						
	Why	What	How	Outsourcing determinants	Effect of A.S on outsourcing extent	Economic outcome	Strategic outcome	Partnership	Specificty	Outsourcing Level	*IT*	*Others*	*TCT*	*Others*
McIvor (2000)		✓										✓		✓
Lee *et al.* (2000)			✓								✓			na
Canez *et al.* (2000)	✓	✓				✓	✓					✓	✓	✓
Costa (2001)	✓		✓											
Jackson *et al.* (2001)			✓									✓		
Madhok (2002)	✓					✓	✓						✓	✓
Jennings (2002)	✓	✓				✓	✓					✓		✓
Wang (2002)									✓		✓		✓	
Franceschini *et al.* (2003)			✓									✓		✓
Bertolini *et al.* (2004)			✓									✓		✓
Gonzalez *et al.* (2005)										✓	✓			na
Dickmann & Tyson (2005)										✓		✓	✓	
Hsu & Hsu (2005)							✓				✓			na
Rodriguez & Padilla (2005)									✓			✓	✓	
De Vita & Wang (2006)	✓	✓												

2.2.1 The process-oriented literature

Much has been written about outsourcing practice and its implementation process. Authors have tried to cover three important dimensions of outsourcing. These being the 'why', 'what', and 'how' of outsourcing. A broad and integrated picture of the literature in relation to these three dimensions enables us to place them under one common umbrella: the process-oriented literature. The following subsections seek to provide a concise critical review of the various research streams that fit into the *process-oriented* classification whilst drawing a clear distinction between empirical and conceptual research.

2.2.1.1 The conceptual process-oriented literature

The conceptual process-oriented literature refers to the various frameworks and models developed with the intention to guide both the make-or-buy decision (the 'why' and 'what') and the outsourcing implementation process (the 'how').

While most conceptual studies focusing on the 'why' of outsourcing have attempted to develop theoretical models (see for example Bettis *et al.*, 1992; Cheon *et al.*, 1995), other papers were more descriptive in nature, taking mainly the form of prescriptive advice and recommended guidelines (Aerston, 1993; Quinn and Hilmer, 1995; Earl, 1996; etc).

Among the studies reviewed the emphasis on risk seems to be quite common (see Table 2.2). Earl (1996) focuses on the perceived risks of outsourcing and the potential danger of hidden costs. He specifically warns of the danger of reducing the learning potential prospect within organizations with a consequent loss of innovation capabilities. Along these lines, and through a theoretical integration of the transaction cost and resource-based theories, Duncan (1998) highlights the risk of eroding internal learning skills.

However, while recognizing the danger of losing critical and cross-functional skills, Quinn and Hilmer (1995) stress that outsourcing enables organizations to leverage their internal resources by tapping into new innovative capabilities, thus enriching organizational learning capacity.

Taking a more economics-based view, Aerston (1993) presents cost reduction as the prime rationale for outsourcing. Drawing from transaction cost theory, he considers both asset specificity and the ease of measurement as the most important factors of the make-or-buy decision. Nevertheless, according to Bettis *et al.* (1992) such economics-driven motives of outsourcing can, through a process of diffusion, initiate *a spiral of decline,* which ultimately leads to the firm's loss of competence and even, arguably, to industry decline.

It is also interesting to note from the review that although transaction cost and resource-based theories were the most frequently employed, there was also evidence of the complementary use of different theoretical traditions. A typical example is Cheon's *et al.* (1995) contingency model of explaining outsourcing, which was based upon four different theories, these being the Resource Based Theory (RBT), Resource Dependence Theory (RDT), Transaction Cost Theory (TCT), and Agency Theory (AT). An additional prominent feature of the studies reviewed is their focus on information technology (IT) outsourcing.

Table 2.2: Main conceptual studies in relation to the *why* of outsourcing

Source	Outsourcing area	Type	Focus	Theory used
Earl (1996)	IS	Prescriptive guidelines	Risk factors	No specific theory
Quinn and Hilmer (1995)	General terms	Prescriptive guidelines	Strategic benefits and risks	Strategic management
Duncan (1998)	IS	Theoretical reasoning	Strategic Risk	RBT + TCT
Cheon *et al.* (1995)	IS	*Conceptual Model for studying outsourcing*	Determinants of outsourcing	RBT + TCT + RDT + Agency Theory
Aerston (1993)	Physical distribution function	Prescriptive guidelines	Cost minimisation	TCT
Bettis *et al.* (1992)	General terms	*The spiral of decline* conceptual model	Risk of industrial decline	RBT

The review of the conceptual literature dealing with the *why* of outsourcing helps us to unveil two distinct perspectives: (i) the economic view and the resulting cost minimisation rationale (mainly stimulated by transaction cost theory) ; and (ii) the strategic view and the consequent 'leveraging resources' motive (inspired by the resource-based theory). These two opposing views on the rationale of outsourcing have resulted in the development of a number of conceptual frameworks aimed at tackling the often controversial issue of the '*what*' of outsourcing. Following the blueprint provided by De Vita and Wang's (2006) taxonomy of outsourcing models, this section classifies the different frameworks in relation to the *'what'* of outsourcing according to three groups, these being the factor-based, process-based, and matrix-type models (see Table 2.3).

Table 2.3: Main conceptual studies on the *what* of outsourcing

Type	Model	Source
Matrix-type Models	Strategic sourcing model	Welch and Nayak (1992)
	Matching organisation to innovation	Chesbrough and Teece (1996)
	MBA Matrix	Bowman and Faulkner (1997)
	Strategic options for managing the investment center	Venkatraman (1997)
Factor-based Models	The strategic sourcing process	Venkatesan (1992)
	Make-or-buy framework	Canez *et al.* (2000)
	A composite outsourcing decision framework	Fill and Visser (2000)
	Contextual model of outsourcing decision	Jennings (2002)
Process-based Models	A conceptual Framework for evaluating the make or buy decision	McIvor *et al.* (1997)
	A practical framework for understanding the outsourcing process	McIvor (2000)

Factor-based models refer to the frameworks that try to structurally combine various contextual factors that are likely to affect the outsourcing decision. Their strength lies into their capacity to synthesise previously unstructured thoughts stemming from various waves of literature in one graphical representation, thus allowing the reader to gain an overall picture of the different factors affecting the make-or-buy decision. Ironically, though, the generality of these models which represents their main strength makes them vulnerable to potential criticism as they may raise confusion due to their failure to offer clear and specific guidelines (De Vita and Wang, 2006). One typical illustration of such models is Canez's *et al.* (2000) make-or-buy framework in which various key factors from the outsourcing literature have been captured and grouped into categories. Other examples of these factor-based models could be found in Venkatesan (1992), Fill and Visser (2000), and Jennings

(2002). While Venkatesan's (1992) map of strategic sourcing process focused on the strategic / non-strategic classification of sub-systems, both Jennings (2002) and Fill and Visser's (2000) models dealt with the strategic and economic aspects while also bringing the supply environment factor into the 'equation'.

Process-based models offer more practical guidelines than factor-based models. Typical examples of such frameworks can be found in McIvor *et al.* (1997) and McIvor (2000). Both studies employed decision-tree type models in which the make-or-buy decision is divided into sequential stages, starting with the definition of the core activities and ending with an analysis of potential supplier partnerships. While the last stage adds to the development of the outsourcing decision by highlighting the importance of trust and collaboration (as opposed to Williamson's (1979) notion of bounded rationality and opportunism), the first stage does not actually provide clear guidelines into how the distinction between core and non-core activities could be made.

As far as *matrix-type models* are concerned, although they could be criticised for limiting our analysis of the complex outsourcing decision to only two dimensions, such models could be praised for being *"visually powerful and easy to apply"* (De Vita and Wang, 2006, p. 5). Based on the strategic role of process technology in the manufacturing sector, Welch and Nayak's (1992) strategic sourcing matrix provides clear guidance for the make-or-buy decision. The vertical axis of the matrix measures the degree of maturity of the process technology across industries while the horizontal axis measures the significance of process technology for competitive advantage. The matrix postulates that whenever the significance of process technology for competitive advantage is low, irrespective of the degree of maturity of that process across industries, that technology should be outsourced, even in cases where the firm's capability in that technology is higher than that of competitors. A similar argument has been put forward by Bowman and

Faulkner (1997) through their Make-Buy-Ally (MBA) matrix, which suggests that whenever the activity under consideration is of little strategic importance, regardless of how proficient the company is at carrying it out itself, that activity should be outsourced. It should be pointed out, however, that both matrices seem to be disregarding the important role of benchmarking in the outsourcing decision, which has been widely emphasised in the literature (see for example Cronk and Sharp, 1995; Quinn and Hilmer, 1995; McIvor *et al.*, 1997). Indeed, contrary to what both these matrices are portraying, if the activity cannot be performed more efficiently and effectively by outside suppliers, then it should not be considered as a good candidate for outsourcing (see, among others, Patterson and Haas, 1999).

A more useful matrix that accounts for the measurement of strategic significance and in so doing overcomes the lack of guidance offered by the two matrices outlined above is the one developed by Chesbrough and Teece (1996). They recommend managers to consider the type of innovation involved in the activity under consideration and to assess whether the required capabilities to generate that innovation can be obtained externally or must be created in-house. According to this matrix, firms should engage in outsourcing if, and only if, the innovation under investigation is autonomous and can be easily obtained externally. In a similar vein, Blumberg (1998) invokes the importance of considering the rate of technological change in the outsourcing decision. He contends that if the technology in relation to the activity under investigation is either stable with limited future potential or occurs at a rate faster than what the firm can sustain, then this activity should be outsourced. This brings us back to Welch and Nayak's (1992) matrix, which suggests that a technology that is in its maturity stage would be, in most cases, suitable for outsourcing since it implies little potential for generating competitive advantage, high probability of a broad range of potential suppliers and, as argued by Gupta and Gupta (1992), a reduction in exit barriers when the technology in question becomes obsolete.

The third stream of conceptual literature on outsourcing is concerned with its implementation process. As emphasised by Dekkers (2000, p. 4086) *"outsourcing is not only an issue for decision-making (what), but it also demands for implementation and control mechanisms (how)"*. Despite such demands, very few attempts have so far been made in organising the various success factors that have been widely cited in the literature (Costa, 2001). Table 2.4 tries to address this gap by summarising the various critical factors to which firms should pay attention when implementing their outsourcing venture. These factors are classified into three broad categories, these being *contract management*, *relationship management*, and *human resource issues* (see Table 2.4).

Table 2.4: Key areas in the management of the outsourcing process

Areas	Factors	Source
Contract Management	Contract lock-in	Jurison (1995), Quinn and Hilmer (1995), Vining and Globerman (1999), Cronk and Sharp (1995), Bartell (1998), Lankford and Parsa (1999)
	Flexible contract terms	
	Provision for transfer of knowledge	
	3 types of contracts: *Turnkey, fixed fee,* and *risk/reward*	
	Control / flexibility trade-off	
Relationship Management	Opportunism versus Trust (Agency theory – TCT)	Quinn (1999), Franceschini *et al.* (2003), Bertolini *et al.* (2004), Lee *et al.* (2000), Saunders *et al.* (1997), Jackson *et al.* (2001)
	Partnership: *"Partnering Discovering"*	
	Performance indicators *"LSA"*	
	Knowledge and innovation exchange	
	Power structure	
	Information anomalies	
	Cooperation versus competition A balanced matrix	
	Analytical hierarchy process technique (AHP)	
Human Resource Issues	Employee transfer	Embleton and Wright (1998), Due (1992), Khosrowpour and Subramanian (1996), Elmuti and Katahwala (2000), Kakabadse and Kakabadse (2000)
	Legal issues (ERISA Act of 1979)	
	Union strike	
	"Survivor's syndrome"	
	Change management	

2.2.1.2 The empirical process-oriented literature

The empirical process-oriented literature is characterised by the use of empirical data processed in order to test hypotheses stemming from the conceptual process-oriented literature. Such empirical research inevitably

takes a positivist methodological stance (Orlikowski and Baroudi, 1991) and typically involves: (i) data collection through survey followed by some statistical analysis (Gable, 1994); or (ii) an empirical case study enquiry (Yin, 1999) involving in-depth interviews or some sort of action research (Rapoport, 1970).

A closer examination of the studies presented in Table 2.1, reveals that most empirical papers focused on testing hypotheses in relation to the determinants of outsourcing and on the effect of asset specificity on the extent of outsourcing (see Table 2.5).

Table 2.5: Key empirical outsourcing studies within the process-oriented literature

Area	Findings	Type of outsourcing	Source
Outsourcing determinants	Imitative behaviour accelerates the adoption of outsourcing	IT	Loh and Venkatraman (1992a)
	Little support for the "kodak effect"[1] positive effect of both external and internal communication channels	IT	Hu *et al.* (1997)
	Outsourcing as a cost minimisation tool	IT	Loh and Venkatraman (1992b); Smith *et al.* (1998); Sobol and Apte (1995)
	Financial instability does not increase the level of IS outsourcing	IT	Teng *et al.* (1995)
	Higher transaction costs negatively affect the outsourcing decision.	US Banking Industry	Ang and Straub (1998)
	Firms outside the computer industry tend to engage more in IT outsourcing than firms within the computer industry	IT	Slaughter and Ang (1996)
Effect of asset specificity on the extent of outsourcing	The level of asset specificity has a negative effect on the degree of outsourcing	IT	Poppo and Zenger (1998); Ang and Cummings (1997); Aubert *et al.* (1996)
		Electronic	Zaheer and Venkatraman (1994)
	The level of asset specificity has no effect on the extent of outsourcing	IT	Nam *et al.* (1996); Loh (1994)
	Positive relationship between advance development or specialised technology and outsourcing	IT	Nelson *et al.* (1996)

One of the interesting empirical studies that provided a novel rationale for outsourcing is the one carried out by Loh and Venkatratman (1992a). Drawing from 'innovation diffusion theory' (Rogers, 1983) and using secondary data

[1] The Kodak effect refers to *"the influential Kodak-IBM deal which changed the common perception of IT outsourcing from an 'arm's length' relationship to one of 'strategic partnership'"* (Hancox and Hackney, 2000, p. 224). For further details, see Loh and Venkatraman (1992a).

based on 60 IS outsourcing ventures for the period 1988 to 1990, they found evidence that outsourcing adoption had been stimulated by both internal factors and imitative behaviour that accelerated its spread. Hu *et al.* (1997) conducted broader research using a larger dataset that included 175 sourcing ventures (from 1985 to 1995). Contrary to Loh and Venkatraman's (1992a) findings, their study did not provide any support for the influence of the Kodak effect on the outsourcing event and demonstrated the positive effect of both external and internal communication channels on the outsourcing decision. Focusing on the economic rationale of outsourcing, both Smith *et al.* (1998) and Loh and Venkatraman (1992b) found evidence that outsourcing was adopted as a result of weak financial performance, in order to reduce costs. Sobol and Apte (1995) found the primary driver for IS outsourcing to be cost containment. This finding is at odds with the evidence provided by Teng's *et al.* (1995) who found a negative relationship between financial instability and the level of IT outsourcing. Consistent with Williamson's economic view, Ang and Straub (1998) found that while high comparative advantages in production costs lead to a greater degree of outsourcing adoption, higher transaction costs impact negatively upon the outsourcing decision.

A different study that examined the determinants of outsourcing is the one by Slaughter and Ang (1996). The study showed that firms outside the computer industry tend to engage more in IT outsourcing than firms within the computer industry; thus highlighting the important role of both the industry type and the activity being outsourced in affecting the outsourcing decision.

It is also worth stressing that although a number of studies have tried to test the transaction cost theory's assumption in relation to the effect of asset specificity on the degree of outsourcing, results have shown mixed support. Indeed, while Poppo and Zenger (1998), Ang and Cummings (1997), Aubert *et al.* (1996), and Zaheer and Venkatraman (1994) supported the idea that asset specificity negatively affect the outsourcing decision, Nam *et al.* (1996)

and Loh (1994) found little evidence of that effect, and Nelson *et al.* (1996) find a positive relationship between specialised technology and outsourcing.

Such contradictions in empirical results over the asset specificity effect could be partially explained by the vague and inconsistent use of the concept both of which have led to difficulties in its empirical parameterisation (Shelanski and Klein, 1995). Nevertheless, a common feature of the above empirical studies is that they all focused on IT outsourcing.

2.2.2 The outcome-oriented literature

While most outsourcing literature has focused on the process of implementing the outsourcing venture, an additional but different stream of work has placed emphasis on the post-outsourcing phase drawing on its outcomes and on the effects it exerts on the performance of both the activity being outsourced and the overall running of the business. The following sub-section tries to shed light on this body of work looking at both the conceptual and the empirical literature.

2.2.2.1 The conceptual outcome-oriented literature

Aside from a few studies, which have offered purely descriptive but valuable insights on outsourcing outcomes through the use of illustrative success stories (eg: Huber, 1993; Quinn and Hilmer, 1995; Cross, 1995; Zhu *et al.*, 2001), the vast majority of published work within this strand of literature has concentrated on the characteristics of successful outsourcing arrangements, highlighting their potential benefits with little consideration of the feasibility of their realisation.

Drawing respectively on the outsourcing experience of British Petroleum (BP) and Continental Bank, Huber (1993) and Cross (1995) described outsourcing as a transition phase involving significant elements of change that must be carefully managed in order to achieve success. The BP case demonstrates

how the criteria concerning the evaluation of outsourcing outcomes can actually evolve over time from cost-oriented to quality-focused factors; which reflects the importance of both economic and strategic benefits of outsourcing. Indeed, a number of authors have categorised the main reasons behind the adoption of outsourcing into short-term cost-associated factors and long-term strategically driven motives (Elmuti *et al.*, 1998; Canez *et al.*, 2000; Kakabadse and Kakbadse, 2000; Benson and Litter, 2002). The former is directly associated with the Transaction Cost Theory which mainly regards the outsourcing decision as a trade-off between low production costs and high transaction costs (Williamson, 1979). The latter is related to both the resource-based theory and the knowledge-based theory (see Lorenzoni and Lipparini, 1999) which view outsourcing as a strategy for building organizational capabilities, consolidating in-house competencies, and tapping into new learning opportunities (Madhok, 2002).

From an economic view point, one of the important benefits that motivates the decision to outsource is cost saving (Finlay and King, 1999; Ketler and Walstrom, 1993; Lacity and Hirschheim, 1993). The reduction in costs is mainly driven from the economies of scale realised by the seller and passed on to the client so as to gain competition. Certainly, through greater specialization that is enhanced by a process of aggregation among customers, the outsourcing supplier will be able to achieve a greater level of efficiencies (Jurison, 1995; Sharpe, 1997). Nonetheless, Jennings (2002) warns that the anticipated cost improvements are not easy to be achieved and are subject to the supplier being in possession of three crucial "cost drivers", namely, economies of scale, learning curves and low cost locations. Lankford and Parsa (1999) make reference to multi-year agreements between the client and the outsourcing supplier as a pre-requisite for the promised cost savings. This idea is also echoed by Benson and Leronimo (1996) who stress that it may take companies some time (usually more than two years) to break-even following their engagement in an outsourcing venture.

Although, according to Loh and Venkatraman (1992b), theories that are based on economies of scale could be considered important tools for explaining the decision to outsource, exclusive focus on cost issues deviates our attention from the strategic opportunities that could be attained through outsourcing relationships (Lorenzoni and Lipparini, 1999). Indeed, as emphasised by Fill and Visser (2000, p. 43) *"outsourcing is not just a costing exercise, it has a strategic dimension".* The Louisiana State University case, where the success of the outsourcing process did not stem from cost saving but from quicker response to demand and increased productivity in backlog management, illustrates the importance of strategic, non-tactical[2] factors in the outsourcing rationale (Zhu *et al.*, 2001). Recognising the importance of long-term strategic thinking, Di Romualdo and Gurbaxani (1998) challenged the continuous applicability of scale economies models in outsourcing emphasising, instead, that this traditional rationale is losing its popularity in favour of more strategic driven benefits. Therefore, although the economic rationale has dominated the outsourcing decision during the last decade (Lacity and Hirchheim, 1993), this traditional approach has been recently complemented by a more strategic view of outsourcing (Quinn and Hilmer, 1995; Bartell, 1998; Elmuti and Kathawala, 2000, Jennings, 2002; Madhok, 2002).

From a strategic point of view, outsourcing can be beneficial in terms of freeing up management time and resources, hence, allowing Chief Executives to focus on their core functions and on achieving strategic objectives (Blumberg, 1998; Lankford and Parsa, 1999; Kliem, 1999). Indeed, as early as 1994, research by the PA Consulting Group reported that *"freeing up management time to focus on core business activities was the third most popular benefit quoted"* (Fowler and Jeffs, 1998, p. 119). This was further corroborated by more recent studies which stressed that outsourcing prevents

[2] Unlike strategic factors (which are always concerned with the long-run), tactical ones are exclusively related to short-term decision making.

management attention from being distracted (Sharpe, 1997; Embleton and Wright, 1998). In turn, this enhanced concentration on core activities is said to improve the quality of service offered by firms and enhances their flexibility in responding to increasingly volatile market conditions (Jurison, 1995; Razzaque and Sheng, 1998; Canez *et al.*, 2000; Kakabadse and Kakabadse, 2000). In addition, while Quinn *et al.* (1990) place emphasis on the benefit of outsourcing in reducing functional scope and providing increased concentration on core activities, Reve (1990) postulates that outsourcing could actually assist companies in increasing product diversification and in achieving economies of scope. In this sense, both the reduction in functional complexity and the achievement of greater focus could be seen as favourable conditions for the development of new products.

An additional positive strategic outcome of outsourcing is the access to, and full utilisation of, external suppliers' specialised knowledge and expertise (Bartell, 1998; Blumberg, 1998; Lankford and Parsa, 1999; Kakabadse and Kakbadse, 2000; Zhu *et al.*, 2001). In fact, outsourcing permits access to skilled labour (and their specialised output), which the firm might, otherwise, find difficult and expensive to attract and retain (Jurison, 1995; Sharpe, 1997). The Apple case, where the firm outsourced 70% of its manufacturing process and, consequently, vastly benefited from the know-how and the technical expertise of its outsourcing suppliers, is a good example of the positive outcomes stemming from this accessibility to specialised knowledge (Quinn and Hilmer, 1995).

Nevertheless, Jennings (2002) warns that failure to closely monitor and control the service provided by the outsourcing firm may limit the scope of quality improvement and may even result in quality deterioration. Along these lines, Lankford and Parsa (1999) underline the importance of monitoring and evaluating supplier performance on both the technical (quality, response time, technology used) and the functional customer service dimensions. Although

contractual pre-arrangements may be used to ensure that the performance of the supplier meets the criteria set by the service level agreement (SLA) (Lee, 1996; Greaver, 1999; Zhu *et al.*, 2001; Benn and Pearcy, 2002), Quinn and Hilmer (1995) argue that the firm must be adequately close to its supplier to ensure that the activity is being well performed. In order to achieve this, Bartell (1998) maintains that firms should not treat their outsourcing venture as a simple contracting out relationship but as a *true partnership*. Indeed, most academic outsourcing studies agree that the essence of a successful partnership is characterised by the presence of mutual understanding, trust, co-operation, shared objectives and continuous communication (Patterson and Haas, 1999; Hancox and Hackney, 2000; Jackson *et al.*, 2001). McIvor *et al.* (1997) highlight the importance of qualitative factors in this new emerging form of outsourcing. As such, outsourcing success is described as a direct function of the quality of information sharing and the existence of collaborative attitudes (Kakabadse and Kakabadse, 2000; Jackson *et al.*, 2001). Unless such characteristics are present, the win-win situation called for by Elmuti *et al.* (1998) would be unlikely to take place.

As argued by Costa (2001), this notion of partnership in the post-outsourcing phase introduces a new set of challenges that have so far been neglected by the outsourcing literature. Indeed, the negative view of human behaviour which is characterised by self-interest and opportunism (as assumed by both Transaction Cost Theory and Agency Theory), raises some serious questions about the applicability of the emerging partnership trend in outsourcing ventures. Concerning this issue, Jennings (2002) calls for a need to understand and carefully assess the existing power structure between the two parties since the latter could have serious repercussions on the development of the relationship. In cases where the client becomes over-dependent on the vendor due to transactional factors such as *'asset specificity'*, difficulties might emerge as the buying firm could become vulnerable to potential danger of opportunism (Williamson, 1979; 1985). A similar situation could also appear in

case of information anomalies where the outsourcing supplier is in possession of unique information which he is reluctant to share with the buyer (Quinn and Hilmer, 1995). Therefore, a true outsourcing partnership depends both on the existence of relationships among equals (Bartell, 1998) and on the continuity of information transparency between the two parties (Kakabadse and Kakabadse, 2000). The above set of challenges make the concept of partnership and its relation to outsourcing something of an ideal rather than a reality (Razzaque and Sheng, 1998), especially if we know that a true partnership necessitates a high level of commonality which is likely to be inhibited during the outsourcing process due to both parties' incompatible profit motive (Lacity, 1993; King, 1994).

Given this degree of impracticability in relation to the notion of true partnership within outsourcing arrangements, Jackson *et al.* (2001) call for a more realistic balance between co-operation and competition within buyer-supplier relationships. In order to provide the appropriate environment that facilitates the achievement of such balanced relationships, an appropriate, formal process of partner selection is required (Razzaque and Sheng, 1998). McIvor *et al.* (1997) stress the importance of qualitative factors. Indeed, apart from quantitative cost factors (discussed earlier), ensuring a good cultural and organisational structure match is considered among the most important critical success factors in outsourcing (McKeon, 1991 cited in Razzaque and Sheng, 1998). Elmuti and Kathawala (2000) contend that the partner selection process within outsourcing arrangements should be based on both the supplier's expertise in the activity to be outsourced and its cultural fit with the organisation. This view could be associated with Bowman and Faulkner's (1997) cultural fit – strategic fit matrix. Although originally designed for application to strategic alliances, the matrix could also be applied to the outsourcing case, where a close relationship between the two parties is established. Whereas strategic fit would mean the ability of the outsourcing supplier to perform the activity being outsourced according to the expectation

of the buyer at a reasonable price, cultural fit would involve a suitable socio-cultural match in which understanding, mutuality and trust are promoted. Therefore, in order to properly manage the outsourcing relationship and yield positive outcomes, firms must select wisely their outsourcing suppliers and build trust in the relationship while maintaining control through both contractual mechanisms and performance-evaluation activities in an attempt to safeguard against any unexpected opportunistic behaviour. However, despite its importance, a recent study of Taiwanese enterprises engaged in IT outsourcing carried out by Hsu and Hsu (2005) showed that post-outsourcing performance evaluation is still uncommon.

While the conceptual outcome-oriented literature highlighted a number of positive outsourcing outcomes, studies concerned with the effects of outsourcing have produced mixed results (Jennings, 2002). Moreover, hardly any studies have attempted to test the outsourcing-performance relationship (Gilley and Rasheed, 2000), *"the evidence available [over outsourcing performance] is still insufficient to draw conclusive inferences from which to discern a conventional wisdom"* (De Vita and Wang, 2006, p. 5). Although mostly based on anecdotal evidence, the conceptual literature reviewed in this section could represent an important foundation for further empirical studies and could, therefore, be employed as a blueprint for evaluating outsourcing performance at the empirical level. The latter could be conceptualised as the degree to which the expected outsourcing benefits (which are at the heart of the outsourcing motives) have been realised (Aubert *et al.*, 1998; King and Malhotra, 2000).

2.2.2.2 The empirical outcome-oriented literature

The empirical outcome-oriented literature aims primarily to test elements of the 'conceptual wisdom' in relation to outsourcing outcomes. Its main objective is to offer empirical evidence (based on observation and / or experiment) to enlighten some of the controversial areas that overshadow the outsourcing-

performance relationship and to assess the actual realisation of the conceptual outsourcing benefits. Gonzalez *et al.* (2005) is one of the recent studies that attempted to empirically investigate various outsourcing success factors. In their study of Spanish firms, they found the main outsourcing success factors to be, in order of priority, "*the provider's understanding of clients' objectives, choosing the right provider, and the client's clear idea of what is sought through outsourcing*" (Gonzalez *et al.*, 2005, p. 399). Even though, contrary to other literature, contract management was not included among the important criteria, it was actually found to be highly ranked among larger firms as opposed to smaller firms.

A closer examination of the empirical outcome-literature reveals that the focus of most studies is on IT outsourcing, with little consideration of the difference between the types of activities being outsourced. Table 2.6 summarises the key findings of these studies.

Table 2.6: Key empirical findings of the outcome-oriented literature

Source	Findings	Outsourcing Domain
Gonzalez *et al.* (2005)	IS outsourcing success factors: i) provider's understanding of client's objectives ii) Choosing the right provider iii) client's clear idea of what is sought through outsourcing	IS Outsourcing
Lee and Kim (1999)	(i) Strong positive relationship between the quality of outsourcing partnership and business satisfaction (ii) Strong positive relationship between the quality of partnership and overall outsourcing satisfaction (iii) Trust is found to be a critical predictor of outsourcing success	IS Outsourcing
Grover *et al.* (1996)	Positive role of partnership on the strength of relationship between the degree of outsourcing certain functions (such as telecommunications) and success	IS Outsourcing
Saunders *et al.* (1997)	(i) Getting the right mix between type of contract and type of relation with the vendor is one of the important determinant of outsourcing success. (ii) IS activities could be successfully outsourced even if they are perceived to be core to the company (tight contract could be used)	IS Outsourcing
Poppo and Zenger (1998)	The more specific the activity, the less satisfied managers are with the performance of the outsourced activity.	IS Outsourcing
Rodriguez and Padilla (2005)	Relationship between specificity of leisure services and performance of the activity is not negative, but neither is it significant.	Hotel leisure activity outsourcing
Wang (2002)	Asset specificity shows a negative effect on post contractual opportunism and a positive effect on outsourcing success	IS Outsourcing
Mol and Gedajlovic (2001)	(i) negative relationship between external sourcing and firm's return on sales (ROS) (ii) Positive relationship between external souring and firm's market share (iii) asset specificity was found to be an insignificant moderator for the external sourcing-profitability relation	Type of activities being outsourced was not considered
Murray and Kotabe (1995)	(i) Market performance advantage of internal sourcing over global external sourcing increases with increased asset specificity (ii) Asset specificity was significant moderator for financial but not strategic performance	Type of activities being outsourced was not considered

Gilley and Rasheed (2000)	(i) No significant direct effect of outsourcing intensity on firm performance (ii) No firm-level performance impact of outsourcing was detected (iii) Firm strategy and environmental dynamism moderated the relationship between outsourcing and performance	Multiple outsourcing activities
Lever (1997)	Outsourcing in one area which may have secondary performance implications for other activities	HR Outsourcing
Dickmann and Tyson (2005)	While key payroll activities were more costly when outsourced, there were efficiency gains in supplementary activities and lesser investment in IT software and maintenance	Payroll Outsourcing

As can be seen from Table 2.7, the studies included in our review covered mostly four broad areas, these being the impact of partnership on outsourcing performance, the relationship between asset specificity and performance of buyer-supplier relationships, the effect of outsourcing on firm performance, and key success factors of outsourcing.

Table 2.7: Classification of the empirical outcome-oriented literature

Studies	Impact of partnership on outsourcing performance	Relationship between (AS) and performance of buyer-supplier relationships	Effect of outsourcing on firm performance	Outsourcing key success factors
Gonzalez *et al.* (2005)				X
Rodriguez & Padilla (2005)		X		
Dickmann & Tyson (2005)			X	
Wang (2002)		X		
Mol & Gedajlovic (2001)		X		
Gilley & Rasheed (2000)			X	
Artz (1999)		X		
Lee & Kim (1999)	X			
Poppo & Zenger (1998)		X		
Saunders *et al.* (1997)				X
Lever (1997)			X	
Grover *et al.* (1996)	X			
Murray & Kotabe (1995)			X	
Heide & Stump (1995)		X		
Heide & John (1990, 1992)		X		

With respect to the partnership, both Grover *et al.* (1996) and Lee and Kim (1999) found a positive relationship between the quality of the outsourcing partnership and the overall outsourcing satisfaction and success. Contrary to the general consensus in the literature over the effect of partnership, empirical evidence on the effect of asset specificity on outsourcing performance was inconclusive, with considerable discordance between different findings. Indeed, while Poppo and Zenger (1998) found that managers become less satisfied with the cost, quality and responsiveness of outsourced activities, as the latter become more specific, Wang's (2002) study revealed a positive relationship between asset specificity and outsourcing outcome. Moreover, although both Rodriquez and Padilla (2005) and Mol and Gedajlovic (2001) found no significant relationship between the specificity of the outsourced activity and its performance, Murray and Kotabe (1995) found asset specificity to be a significant moderator for financial but not for strategic performance. In a different study that focused on the determinants of outsourcing success, Saunders *et al.* (1997) found that IS activities could be successfully outsourced even if they are perceived to be core to the company. In such case, tight contract were highly recommended. As far as the relation between outsourcing level and firm performance is concerned, while Gilley and Racheed (2000) found no significant direct effect of outsourcing intensity on firm performance, both Lever's (1997) and Dickmann and Tyson's (2005) studies revealed that outsourcing in one area may have secondary performance implications for other activities.

These inconsistencies in findings coupled with an apparent focus on IT outsourcing and a failure of viewing asset specificity from a disaggregated angle (that looks at the effect of each dimension of asset specificity from both the buyer and suppliers' side), hinder our understanding of the 'true' outsourcing-performance relationship in general and, in particular, the effect of the degree of asset specificity on outsourcing outcomes.

2.2.3 A synthesis of the mapping of the outsourcing literature

Section 2.3 mapped and assessed the relevant intellectual territory through a review of the outsourcing literature that synthesises and integrates different academic papers and research findings (see table 2.1). From this, significant patterns have emerged, leading the author to several conclusions.

First, the absence of a common agreement over the definition and the use of a certain terminology (particularly *asset specificity*) led to a mass of often contradictory studies, the comparison of which is hindered by a high level of inconsistency and vagueness.

Second, the over-emphasis on IT outsourcing has led to the under-representation of other types of activities being outsourced, which remain under-researched. Of the 73 outsourcing studies included in our review, 33 (45%) were IS specific. In addition, of the 40 non-IS outsourcing studies, only 7 (17.5%) were empirical in nature. Certainly, there are valuable insights to be gained by analysing outsourcing in a more empirical manner using different control variables. Taking into account types of activities being outsourced might reveal trends undetected by extant research.

Third, an analysis of Table 2.1 shows that although both the process and outcome-oriented literature have been widely covered conceptually, few empirical studies have been carried out especially at the outcome level and, thus, the relationship between outsourcing and performance remains still empirically under-developed (Gilley and Rasheed, 2000). Indeed, while it is empirically demonstrated that over the last decade there has been a dramatic increase in the adoption of outsourcing both in the manufacturing and the service sectors (Murray and Kotabe, 1999), it is far less apparent whether outsourcing actually leads to its expected outcomes. Does it indeed lead to improved firm performance through cost savings, greater access to external expertise, and enhanced focus and quality? Or does it actually lead to weaker

performance through deterioration in quality (King, 1994; Downey, 1995; Fowler and Jeffs, 1998), increased hidden cost (Earl, 1996; Embleton and Wright, 1998), and even the loss of critical skills and, the consequent, 'hollowing out of corporations' (Bettis *et al.*, 1992). Interestingly though, a closer look at Table 2.1 reveals that the topic in relation to outsourcing performance is gradually gathering momentum. Indeed, while most empirical studies in the process-oriented literature took place before 1997, the majority of the empirical outcome-oriented literature has been carried out after 1997 with a pick in year 2005.

Finally, while TCT was one of the theories that were mostly referred to in the outsourcing literature (37% of papers reviewed), there seems to be some kind of controversy over the effect of TCT's most important construct (asset specificity) on outsourcing, in general, and on its outcomes in particular.

Therefore, there is certainly sufficient evidence to argue that, in accordance with Dibbern *et al.'s* (2004) finding, *outsourcing success* is a dependant variable that represents a gap in our existing knowledge of outsourcing. Certainly, further systematic empirical research in this area is required. A precise theme on which more empirical work is clearly warranted is the effect of the degree of asset specificity on outsourcing success.

2.3 Asset specificity

Since asset specificity is the central theme of this thesis and given its widespread application in a variety of different research areas, there is an obvious need to first clarify its definition, and then critically review various methods of its operationalisation and measurement as employed by previous empirical studies.

2.3.1 Defining asset specificity

The concept of asset specificity was initially employed by Marshall (1949, p. 172) who coined the expression *'specialized ability'* in his description of materials and processes required for special individual trades purposes. Polanyi's (1978) notion of personal knowledge was also linked to asset specificity. Along these lines and emphasising on the notion of the uniqueness of both tangible and intangible resources, Marschak (1968) strongly questions the unchallenged assumption in relation to the ease of replacing firm's certain assets with others. The concept of asset specificity, however, did not gain prominence until the emergence of Williamson's TCT in which asset specificity was argued to be the most important factor (alongside *uncertainty* and *frequency*) in determining the choice of governance and in explaining firms' decisions in relation to vertical integration (Williamson, 1979, 1983). Its association with the constructs of *opportunism* and *incomplete contracts,* Klein's *et al.* (1978) concept of *"appropriable quasi rents*[3]*"* could be seen as a development and refinement of the construct of asset specificity that helped accentuating its significance as a leading factor in explaining the vertical integration rationale.

Williamson defines asset specificity in terms of *"the degree to which an asset can be redeployed to alternative uses by alternative users without sacrifice of productive value"* (Williamson, 1985, p. 95; Williamson, 1988, p. 70). As such, the concept refers to:

> *"durable investments that are undertaken in support of particular transactions, the opportunity cost of which investments is much lower in best alternative uses or by alternative user should the original transaction be prematurely terminated"* (ibid, 1985, p. 55).

[3] The quasi-rent value of an asset is defined as "the excess of its value over its salvage value, that is, its value in its next best use to another renter" (Klein *et al.*, 1978, p. 298).

These investments that characterise asset specificity may take various forms. Indeed, Williamson (1983, p. 526) distinguishes four types of asset specificity including *i) Human asset specificity ii) Physical asset specificity iii) Site specificity iv) Dedicated asset specificity*, to which both *Brand name capital* (Williamson, 1985, 1988) and *Temporal specificity* (Malone *et al.*, 1987; Masten *el al.*, 1991, p. 9; Pirrong 1993) have been added; resulting in a total of six types of asset specificity and marking the start of the third stage in TCT's development. According to Joskow (1987, p. 170), although all types of asset specificity could be seen as *"different instances from the same phenomenon"*, the differentiation between each of these types is highly valuable when it comes to empirical applications.

Asset specificity has been presented by Williamson as the defining dimension of transaction cost economics (Williamson, 1975, 1985, 1986, 1991, 1996). The wide variety of industries and research areas in which this concept has been applied is a testament to its significance. In vertical integration, for example, asset specificity has been used to explain the make-or-buy decisions within the automobile industry (Monteverde and Teece, 1982; Walker and Weber, 1984), the aerospace industry (Masten, 1984; Adler *et al.*, 1998), the electronic industry (Nishiguchi, 1994), and the hotel industry (Lamminmaki, 2005; Rodriguez and Padilla, 2005). Other areas where this concept has been applied, include integration of the selling function (Anderson and Schmittlein, 1984; Anderson, 1985), contract duration in the electric generation industry (Joskow, 1987), vertical integration in the aluminium industry (Stuckey, 1983; Hennart, 1988), the design of remuneration contract (Deegan, 1997), and IT or software outsourcing (Wang, 2002; Aubert *et al*, 2003; Dibbern *et al.*, 2005).

Despite the above, asset specificity has been criticised for being loosely defined (Barthelemy and Quelin, 2002), which explains the absence of a commonly agreed operationalisation of this concept (Lohtia *et al.*, 1994;

Shelanski and Klein, 1995; David and Han, 2004). This problem was further highlighted by Fisher (1977, p.322) who argued that *"the concept enjoyed too many degrees of freedom"*. Sharing the same view, Joskow (1988, p. 96-97) raised suspicion over its grounding nature as the concept seemed to be fitting almost every situation. He states: *"my concern was that one could always invent a specification of transactions that could rationalize almost anything"*. This *weakness* has also been acknowledged by Williamson (1979, p. 261) who noted that *"identifying critical dimensions with respect to which transactions [specificity] differs has been a significant omission... The concept wants for definition"* (1979, p. 233). Consequently, further attention to the development and evaluation of the definition of asset specificity and its measurement is called for (Shelanski and Klein, 1995, p. 340; Wiggins, 1991, p. 619).

While most papers have chosen to directly quote Williamson's definition of asset specificity, a number of authors have tried to redefine the concept using their own interpretations (see Appendix 2.1). Although these attempts should be praised for trying to enrich our understanding of the concept by directing our attention to different individual dimensions of asset specificity, failure to systematically organise them in a blended framework leaves ambiguity over the complex meaning of asset specificity (David and Han, 2004). Indeed, even though existing literature has already pointed to the confusion caused by the lack of agreement over the specific understanding of the concept, to the author's knowledge, no formal classification of asset specificity definitions has yet been developed.

In an attempt to address this issue and arrive at the specification of an operational and measurable construct of asset specificity, it is useful to categorise the various definitions according to the distinguishing features which they emphasise. According to Pfeffer (1993) such effort should facilitate both the systematic advancement of knowledge and the cumulative

development of theory, thus fulfilling the prime purpose of all these definitions, which is to *serve future research* (Akehurst, 1987, p. 5).

Table 2.8: Categorisation of asset specificity definitions according to factors emphasised

Source	Key Characteristics / Dimensions
Kern (1999) Buvik and Anderson (2002) Anderson and Schmittlein (1984) Anderson (1985) Jurison (1995) Heide and John (1988)	***Degree of customization needed to support transactions relationship***
Erramilli and Rao (1993) Widener and Selto (1999)	***Uniqueness of assets/ investments to task or activity***
Williamson (1979) Wiggins (1991)	***The importance of the identity of the two parties in the transaction process***
Rodriguez and Padilla (2005) Brown and Potoski (2005) Morill and Morill (2003) John and Weitz (1988) Murray and Kotabe (1995, 1999)	***Redeployment and transferability of assets / investments that are needed for supporting a particular transaction or production***
Aubert et al. (1996) Lohtia et al (1994) Brouthers and Brouthers (2003) Heide and John (1990) Vining and Globerman (1999, 2004) Barney and Hesterly (1996, p. 119) Walker and Weber (1984)	***The value of the asset outside a specific transactional relationship***
Deegan (1997) Lamminmaki (2005) Lyons (1995)	***Continuing transaction relationship***

Note: A copy of all definitions considered in this table is included in Appendix 2.1

As can be seen from Table 2.8, a central dimension that could be related to the definition of asset specificity is the degree of customisation needed to support the transaction or contractual relationship, including outsourcing

(Anderson, 1985; Heide and John, 1988). This involves the resources or assets that are devoted, on the one hand, by the supplier in carrying out the activity / service being transacted (Kern, 1999) and, on the other hand, by the buyer in dealing with a particular provider (Buvik and Anderson, 2002).

The degree of customisation of these investments (both tangible and intangible) is determined by the degree of their uniqueness to the activity / service being transacted (Erramilli and Rao, 1993; Widener and Selto, 1999) and by the extent of their capacity for redeployment and transferability to other activities outside the *focal* transaction relationship (Rodriguez and Padilla, 2005; Brown and Potoski, 2005; Morill and Morill, 2003; John and Weitz, 1988; Murray and Kotabe, 1995; 1999). According to Barney and Hesterly (1996, p. 119) the latter refers to *"the difference in value between an investment's first best use (in the current transaction) and its second best use (in the some other transaction)"*. Indeed, the higher the level of asset specificity within a transactional relationship, the lower its value outside the same relationship (Walker and Weber; 1984; Williamson, 1985; Heide and John, 1990; Lohtia *et al.,* 1994; Aubert *et al.,* 1996; Barney and Hesterly, 1996; Vining and Globerman, 1999; Brouthers and Brouthers, 2003; Vining and Globerman, 2004). The difference in value is referred to by Klein *et al.* (1978, p. 298) as *"appropriable quasi rents"*. Hence, the greater the specificity level embedded in a transaction relationship, the higher its quasi rent stream (Deegan, 1997).

This reduced value outside the intended transaction relationship reflects the importance of the transactional parties' *identity* (Williamson, 1979). One typical and highly illustrative example is the identity of a trading party between a building owner and the owner of the land on which the building rests (Wiggins, 1991). Under such circumstances, the value of both the land and the building depend on continued trade between the two owners. This suggests that under conditions of high asset specificity, the value of the asset,

customised to the transactional relationship, would be tied up to the *continuance* of the same transaction relationship (Deegan, 1997; Lamminmaki, 2005; Lyons, 1995). Consequently, should the relationship cease to continue, both parties would be at *risk* of losing the value of the investment initially devoted to that transaction relationship. By way of contrast, a continued relationship could create *'a lock in situation'* that could *opportunistically* be exploited by one party or another to the detriment of the potential benefits of the transaction relationship (Williamson, 1979; 1985). Indeed, as suggested by the *reactance theory*[4], dependent or locked-in parties usually react by trying to resist partner influence attempts, which would result in greater relationship conflict and less overall satisfaction (Joshi and Arnold, 1997).

In the light of the above discussion, a number of dimensions in relation to Williamson's asset specificity can be identified:

i) Extent of resources devoted by *both* buyer and supplier for the support of the transaction;

ii) Degree of transferability / redeployment of these resources;

iii) The difference in value between the investment current use and its future best use;

iv) The importance of the identity of the two parties;

v) The importance of the continuance of the relationship and the consequent, degree of *lock-in* and *dependence*.

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[4] The reactance theory was introduced by Brehm (1966) and suggests that when constraints on freedom are imposed, the party experiencing these constraints will become increasingly motivated to counter these restrictions.

The identification of the above dimensions along which the degree of asset specificity could vary in a transactional / contractual relationship (including outsourcing), improves our understanding of the concept and builds a better conceptual definition of the term, which ultimately facilitates both its operationalisation and measurement.

One of the main problems faced by researchers in their empirical testing of Williamson's Transaction Cost Theory is without doubt the measurement of the degree of asset specificity (Wiggins, 1991; Shelanski and Klein, 1995). Morill and Morill (2003) argue that such construct is not directly observable, requiring the use of multiple indicators capable of capturing its complexity. Wang (2002, p. 168) attributes the inconsistencies in TCT's empirical findings to the multiple operationalisations of the specificity concept stemming from its abstract and multidimensional nature. Sharing the same view, Joskow (1988, p.106) describes the task of measuring the degree of asset specificity as a challenging mission stressing that *"we are certainly not going to find these measures written down neatly in a book of industry statistics. The best that we can hope for is more qualitative information on variations in the importance of asset specificity".* Shelanski and Klein (1995, p. 339) frame the issue well as follows *"empirical research in TCT is often hampered by confusion about the definition, and therefore the empirical parameterisations of key variables [such as asset specificity]".* Although Williamson (1979) tried to rectify the operationalisation "weakness" in relation to the asset specificity construct by breaking the degree of specificity into three broad categories (*non-specific*, *mixed* and *highly specific*), the measurement of the concept remains a difficult task on which Williamson offered little guidance (Lohtia *et al.*, 1994; McIvor, 2000).

As a result, attempts to measure this construct have often been subject to profound criticism. While Masten *et al.* (1991) note that most empirical

research relied on qualitative and *"imprecise proxies"* which, according to Wiggins (1991), are open to multiple interpretations, both Anderson (1985) and Rindfleisch and Heide (1997) call for a more comprehensive scale development allowing for better measurements of the concept and, hence, for the progress and development of theories relating to it (Churchill, 1979). Concerning this issue, Lohtia *et al.* (1994) noted the uni-dimensionality way by which researchers have so far operationalised the asset specificity construct, and highlighted the need for future empirical studies to count for its multi-dimensionalily and employ measures that are disaggregated by types of dimensions so as to be able to shed light on the theoretical ramifications of each dimension of transaction-specific assets.

In the search for such measures, this section reviews various asset specificity measures that have been employed by the most significant empirical studies across a broad range of contexts and disciplinary areas. Such inter-disciplinary interaction should yield better *cross-fertilized* methods and ideas that would, consequently, enhance both the conceptualisation and the measurement of the specificity construct.

2.3.2 An overview of empirical studies of asset specificity

A review of the empirical literature in relation to asset specificity reveals the use of different dimensions through which the concept was measured and articulated. These dimensions coincide with Williamson's typology of asset specificity, which distinguishes six types of asset specificity (see previous discussion in section 2.4.1). Joskow (1987) emphasised the importance to consider these multifaceted aspects of specificity so as to ensure consistent empirical research on the same construct. While different studies have taken into account, to various extents, these types of asset specificity, other papers have chosen to measure the concept at the *procedural level* (Zaheer and Venkatraman, 1995) or even at a *broad level*. Table 2.9 presents a list of

authors and their works, indicating the measurement levels they have covered, the research method they have employed, and the research setting adopted in their studies. To the author's knowledge, this represents the first attempt to undertake a comprehensive measure comparison in relation to asset specificity.

Table 2.9: Asset specificity measurement: a review of empirical studies

Author(s)	Asset Specificity Related Studies									
	Measurement Dimensions								***Research Method and Setting***	
	Six types of asset specificity						*An additional dimension*			
	Human	Physical	Site	Dedicated	Brand	Temporal	Procedural	Broad Level	Data Collection	Context
Adler *et al.* (1998)	✓	✓		✓					Secondary data	Air Force Industry
Anderson (1985)*	✓								Quest 7-p scale	Electronic Industry
Anderson and Schmittlein (1984)*	✓								Quest 7-p scale	Electronic Industry
Auber *et al.* (2003)*								✓	Quest 7-p scale	Several Industries
Barthelemy and Quelin (2002)								✓	Quest 5-p scale	Several Industries
Brouthers and Brouthers (2003)	✓			✓					Quest 7-p scale	Several Industries
Brown and Potoski (2005)*	✓	✓	✓			✓		✓	Quest 5-p scale	Municipal service Industry
Bucklin and Sengupta (1993)	✓	✓							Quest reversed coded scale	Several Industries
Deegan (1997)								✓	Quest 7-p scale	Several Industries
Dibbern *et al.* (2005)*	✓								Quest 5-p scale	Several Industries
Dragonetti *et al.* (2003)*								✓	Quest 5-p scale	Several industries

Table 2.9: Asset specificity measurement: a review of empirical studies *(continued)*

Author(s)	Asset Specificity Related Studies									
	Measurement Dimensions								***Research Method and Setting***	
	Six types of asset specificity					*An additional dimension*				
	Human	Physical	Site	Dedicated	Brand	Temporal	Procedural	Broad Level	Data Collection	Context
Gatignon and Anderson (1988)					✓				Secondary Data	Several Industries
Ghani and Khan (2004)	✓	✓	✓						Interview	Automobile Industry
Heide and John (1988)*								✓	Quest 7-p scale	Electrical and Process Equipment Industries
Heide and John (1990)*		✓					✓		Quest 7-p scale	Several Industries
Heide and John (1992)	✓	✓		✓			✓	✓	Quest 7-p scale	Several Industries
Houston and Johnson (2000)	✓								Secondary Data	Several Industries
John and Weitz (1988)	✓								Interv + Quest	Several Industries
Joskow (1987)			✓					✓	Secondary Data	Electric Generation Industry
Klein and Roth (1990)	✓	✓							Quest 7-p scale	Several Industries
Klein *et al.* (1990)*	✓	✓							Quest 7-p scale	Several Industries
Lamminmaki (2005)*	✓	✓	✓	✓	✓	✓			Interviews	Hotel Industry
Lyons (1995)		✓							Quest + Interv	Engineering Industry

Table 2.9: Asset specificity measurement: a review of empirical studies *(continued)*

Author(s)	Asset Specificity Related Studies									
	Measurement Dimensions								***Research Method and Setting***	
	Six types of asset specificity						*An additional dimension*			
	Human	Physical	Site	Dedicated	Brand	Temporal	Procedural	Broad Level	Data Collection	Context
Levy (1985)*	✓	✓	✓		✓			✓	Secondary Data	Several Industries
Lieberman (1991)*		✓							Secondary Data	Chemical Industry
Maltz (1993)	✓							✓	Quest 7-p scale	Several Industries
Masten (1984)		✓	✓						Quest	Aerospace Industry (Single Firm)
Masten *et al.* (1991)	✓	✓				✓			Quest 10-p scale	Shipbuilding Industry (Single project)
Mol and Gedajlovic (2001)								✓	Secondary Data	Several Industries
Monteverde and Teece (1982)	✓	✓							Quest 10-p scale	Automobile Industry
Morill and Morill (2003)	✓								Quest 7-p scale	Several Industries
Murray and Kotabe (1995, 1999)	✓	✓		✓					Quest 5-p scale	Several Industries
Nishiguchi (1994)*	✓	✓	✓	✓					Interv + Quest	Electronic Industry
Palay (1984)		✓							Interview	Rail Industry
Poppo and Zenger (1998)*	✓							✓	Quest 7-p scale	Several Industries

Table 2.9: Asset specificity measurement: a review of empirical studies (continued)

Author(s)	Asset Specificity Related Studies: Measurement Dimensions: Six types of asset specificity: Human	Physical	Site	Dedicated	Brand	An additional dimension: Temporal	Procedural	Broad Level	Research Method and Setting: Data Collection	Context
Rodriguez and Padilla (2005)*	✓							✓	Quest 7-p scale	Hotel Industry
Stump and Heide (1996)		✓					✓	✓	Quest 7-p scale	Chemical Industry
Walker and Poppo (1991)	✓	✓							Quest 7-p scale	Single Firm
Walker and Weber (1984)								✓	Longitudinal study (3 years)	Automobile Industry
Wang (2002)*	✓			✓					Quest 5-p scale	Several Industries
Weiss and Anderson (1992)	✓	✓						✓	Quest 7-p scale	Electronic Industry
Widener and Selto (1999)*	✓								Quest	Several Industries
Zaheer and Venkatraman (1994, 1995)*	✓						✓		Quest 7-p scale	Insurance Industry

* Studies that are related to outsourcing or to vertical integration

Note: *'Quest' is used in the above table as an abbreviation for 'questionnaire'.*
For full details of the measurement used see appendix 2.2
Extracts from a number of questionnaires used by the reviewed studies are included in appendix 2.3

In their measurement of the asset specificity construct, most studies reviewed made use of mail questionnaires in which they employed the Likert-type scales. Nonetheless, the table reveals little uniformity in the number of scale steps used as they ranged from 5-point fully labelled rating scale (eg. Dragonetti *et al.*, 2003) to 10-point variants labelled only at the extreme and midpoints (eg. Monteverde and Teece, 1982). The seven-point Likert scale was, however, the most frequently used. While the majority of studies have used primary data through survey instruments like questionnaires, interviews or a mixture of both (see John and Weitz, 1988; Lyons, 1995; Nishiguchi, 1994), other studies (Lieberman, 1991; Levy, 1985; Adler *et al.*, 1998; Mol and Gedajlovic, 2001; Houston and Johnson, 2000) have relied on secondary data sources such as sales reports.

Even though the human asset specificity factor has been described by Williamson (1979, 1986) as the most difficult to operationalise due to its intangible nature, it is striking to note that in accordance with Lohtia *et al.* (1994) and David and Han's (2004) findings, this factor was the most frequently considered in the empirical studies reviewed. This could be explained by the fact that direct measures of asset specificity have often focused on the people intensive nature of the construct (Rindfleisch and Heide, 1997), which could be seen as inevitable since *"specific human capital is central to transactions"* (Williamson, 1979, p. 244). Nevertheless, this over-emphasis on human asset specificity seems to have detracted attention from considering the other types of asset specificity. Indeed, as could be seen from the review of studies (summarised in Table 2.8), apart from physical asset specificity (which has received as high attention as the one given to human specificity), the other four types have seldom been considered in empirical research.

Moreover, although multi-item scale was widely used, multi-measures of specificity have found little application despite their potential to increase

reliability and to reduce both measurement errors (Churchill, 1979) and the threat of common-method variance (Widener and Selto, 1999). In fact, the vast majority of studies has relied on one or two types of specificity in their measurement of the entire construct. As such, no attempts have been made to provide a comprehensive measure of specificity through the consideration of its various types and dimensions. One distinctive exception was Lamminmaki's (2005) study of outsourcing in the Hotel Industry. However, although his study tried to explore the asset specificity concept through the application of Williamson's-six dimensional typology, the research was constrained to a single industry, was based only on 11 hotels, relied on descriptive qualitative assessment of specificity and, in the end, failed to offer any quantitative measures of the construct.

It is also interesting to note that, in an attempt to measure asset specificity, some studies (eg: Aubert *et al.*, 2003; Brown and Potoski, 2005) relied on the direct citation of Williamson's definition of the concept in their questionnaire asking respondents to evaluate its level using Likert-type scales. Such broad means are unlikely to encapsulate the various and complex underlying dimensions of the concept, thus threatening the validity and reliability of the measurement.

Furthermore, although there was agreement in the literature that asset specificity involves resources dedicated by both buyer and supplier in support of their transactional relationship, with the exception of a few studies (Rodriguez and Padilla, 2005; Ghani and Khan, 2004; Bucklin and Sengupta, 1993; Heide and John, 1990 and 1992), most measures employed focused on the degree of investment made by the supplier. This could be due to the fact that suppliers are more likely to devote additional resources since they are the ones that carry out the activity being transacted or outsourced (Barthelemy and Quelin, 2002). More importantly, it is difficult and perhaps unpractical to carry out research by surveying both suppliers and buyers. Nevertheless, this

issue could be overcome by surveying one party within the relationship (eg. buyers) and use their perceptions of the extent of resources devoted by their counterpart (providers) for the unique purpose of the relationship. The use of buyers' perception in relation to suppliers or providers should not negatively affect the measurement validity of the concept since previous studies showed that suppliers and buyers share consistent perceptions not only of the performance of the exchange relationship (Anderson and Narus, 1990) but also of the attributes of exchange (Heide and John, 1990).

As far as the research context is concerned, it is interesting to note that, in agreement with Shelanski and Klein's (1995) claim, few outsourcing studies have investigated the asset specificity concept in a multi-industry level and across different types of outsourcing. Indeed, most of the studies reviewed (see Table 9) were either based on a single industry (Rodriguez and Padilla, 2005; Anderson, 1985; Anderson and Schmittlein, 1984) or were predominantly focusing on a single type of outsourcing such as IT outsourcing (Wang, 2002; Aubert *et al.*, 2003; Dibbern *et al.*, 2005; Poppo and Zenger; 1998). Levy (1985) was among the very few exceptions that studied asset specificity across different industries and in different types of outsourcing, however, his research was based purely on secondary data unlikely to yield reliable measurement (Rindfleisch and Heide, 1997).

Given the deficiencies outlined in relation to the multi-dimension coverage of the concept, this research seeks to bridge this void through the use of measures that represent as much of the construct 'space' or domain as possible while trying to simultaneously satisfy key methodological criteria. Indeed, according to Sharfman and Dean (1991, p. 712) the use of such multi-dimensional measures are *"acceptable, and in some cases, essential"* as long as they meet important methodological criteria.

On this basis, in this research, operationalisation issues in relation to each of the six specificity types will be taken into account. An additional measurement level that will be considered is the degree of the procedural specificity caused by the relationship. The discussion of all these measures will not focus on one party but will include both buyers and suppliers.

2.3.2.1 Human asset specificity

Human asset specificity refers to *"the degree to which skills, knowledge and experience of firm's personnel are specific to the requirements of dealing with another firm"* (Zaheer and Venkatraman, 1995, p. 377). It could be characterised as knowledge specific assets (Dibbern *et al.*, 2005) that arise from *learning-by-doing* (Williamson, 1996, p. 105) and which are not transferable due to their limited application in other work settings (Lamminmaki, 2005). According to Ruchala (1997), human asset specificity involves not only the expertise that is required for carrying out a particular activity but also the costs of training and the development of a corporate culture that facilitates and supports the interaction within the transaction relationship. This type of asset specificity was the type most frequently considered by the variety of measurement approaches that have been applied (see Table 2.10).

Table 2.10: A review of human asset specificity measurement approaches

	Party	Measurement Approaches	Source
Human Asset Specificity	**Provider Party** (supplier)	Uniqueness of required knowledge in relation to: i) *the activity being transacted*; ii) *buyer's business;* iii) *the industry within which the buyer is operatin.g* *Eg: (Length of time required to become familiar with firm's products and customers)*	Dibbern *et al.* (2005); Poppo and Zenger (1998) ; Wang (2002) ; Morill and Morill (2003); Rodriguez and Padilla (2005); Anderson (1985); Andserson and Schmittlein (1984), Widener and Selto (1999); Klein and Roth (1990); Klein *et al.* (1990), John and Weitz (1988)
		Degree to which the activity / service is custom-tailored to the buyer's company	Poppo and Zenger (1998), Wang (2002)
		Uniqueness of technical skills and experience required in carrying out the activity / service being transacted	Walker and Poppo (1991); Masten *et al.* (1991); John and Weitz (1988)
		Amount of effort required in order to carry out the activity *Eg: (Estimated Labour hrs / Estimated cost of the contract)*	Monteverde and Teece (1982); Masten *et al.*, (1991) Adler *et al.* (1998)
		The level of access to confidential information required in carrying out the activity (use of proprietary knowledge)	Anderson and Schmittlein (1984); Anderson (1985); Widener and Selto (1999); Weiss and Anderson (1992), Klein *et al.* (1990)
		The level of additional training (in time and money) and the cost of extra recruitment required due to the customized nature of the activity (specialized know-how).	Wang (2002); Lamminmaki (2005); Murray and Kotabe (1995, 1999), Zaheer and Venkatraman (1994, 1995); Widener and Selto (1999); Heide and John (1992); Weiss and Anderson (1992); Bucklin and Sengupta (1993); Brouthers and Brouthers (2003)
		Number of subcontractor's employees / Number of its regular customers	Nishiguchi (1994)
		Intensity of the RandD activities	Houston and Johnson (2000)
		Annual hours spent by supplier personnel interacting with buyer and the degree of social collaboration between firm and supplier	Dibbern *et al.* (2005)
	Buyer Party (*Company engaging in outsourcing*)	Cost and time required to switch vendor *(including: search, contract negotiation, supervising compliance to contract)*	Rodriquez and Padilla (2005); Poppo and Zenger (1998)
		Hours spent by buyers' personnel at suppliers' plant; Level of assistance provided to supplier	Ghani and Khan (2004); Heide and John (1992)
		Additional recruited staff uniquely needed to support the transaction relationship	Bucklin and Sengupta (1993)

In their measurement of the level of human asset specificity, most studies focused on the additional requirements that are placed on the *supplier side* and which are specifically and uniquely tailored to the support of their

relationship with clients. In particular, most attention was directed to the level of additional but unique *training* that is required due to the customised nature of the activity (Lamminmaki, 2005; Murray and Kotabe, 1995, 1999; Zaheer and Venkatraman, 1994; Bucklin and Sengupta, 1993; Brouthers and Brouthers, 2003). In addition to the uniqueness of the required knowledge in relation to the activity being transacted (Dibbern *et al.*, 2005; Poppo and Zenger, 1998; Wang, 2002; Morill and Morill, 2003; Rodriguez and Padilla, 2005; Widener and Selto, 1999; Klein and Roth, 1990), the extent of knowledge about the *firm* and the *industry* within which the buyer is operating was also employed as a proxy for human asset specificity. Indeed, in measuring the specificity of the working relationship between a sales person and his or her organization both Anderson and Schmittlein (1984) and Anderson (1985) have associated the degree of the human asset specificity with the level of difficulty that a salesperson faces in learning about *"the ins and outs"* of the organisation. The latter has been measured by John and Weitz (1988) through their assessment of the length of time a newly recruited sales person would need to familiarize himself with the firm's products and customers. Morill and Morill (2003) measured the human asset specificity involved in the outsourcing of the auditing activity by the extent of the buyer's industry specific data that is required by the supplier in carrying out the auditing activity. The extent of knowledge concerning the client business and industry have also been widely conceptualised in the literature by the extent of supplier's accessibility to confidential information (Weiss and Anderson, 1992; Klein *et al.*, 1990; Anderson, 1985; Anderson and Schmittlein, 1984).

Moreover, other authors have made reference to the uniqueness of technical skills and experience required in carrying out the activity or service being transacted (Walker and Poppo, 1991; John and Weitz, 1988), which has been broadly operationalised by both Monteverde and Teece (1982) and Masten *et al.* (1991) in terms of the amount of effort necessary for the carrying out of the activity. This amount of effort could be seen, in turn, as a consequence of the

degree by which the activity or service is custom-tailored to the buyer's firm (Poppo and Zenger, 1998; Wang, 2002). A direct quantitative measure of the effort made by the supplier has been employed by Adler *et al.* (1998) by dividing the estimated labour hours required over the estimated cost of the contract. In a similar vein, Dibbern *et al.* (2005) looked at annual hours spent by supplier personnel interacting with buyer. The same study tried to include also the buyer party in their measurement by considering the degree of social collaboration between the firm engaging in outsourcing and its provider.

Other quantitative measures that could give us an idea about the degree of human asset specificity involved but which, in the author's view, should not be employed in isolation (due to their broad nature) are the ones presented by Nishiguchi (1994) and Houston and Johnson (2000). While the former divided the number of subcontractor's employees by the number of its regular customers, the latter used the intensity of RandD expenditure in the supplying firm as a measure for human asset specificity. This approach, which gives us an idea about the degree of knowledge-based assets at the firm's level, was employed as a proxy for transaction-level expenditures since it was assumed that *"firm-level measures are likely highly correlated with the characteristics of a given transaction for that firm"* (Houston and Johnson, 2000, p. 7). However, relying solely on such a measure could make the research results vulnerable to potential *"misspecification problems"* (Brouthers and Brouthers, 2003, p. 1182).

One common factor about the above measurement approaches is that they all focused on the extent of resources devoted by the supplier party within the transactional relationship but failed to include other factors. In fact, the extent of the redeployment of these resources and the importance of the continuity of the relationship (two asset specificity dimensions that were drawn in section 2.1) were not directly measured. The latter was, however, operationalised by few studies that focused on the buyer side through their investigation of the

cost and time required to switch vendor (Rodriquez and Padilla, 2005; Poppo and Zenger, 1998). Other factors that were employed in the measurement of the human asset specificity from the buyer perspective are the additional recruitments made by buyers for the unique purpose of the transactional relationship (Bucklin and Sengupta, 1993) and their level of assistance provided to suppliers (Heide and John, 1992). The latter was measured by the number of hours spent by buyer's personnel at the supplier's plant (Ghani and Khan, 2004).

2.3.2.2 Physical asset specificity

While human asset specificity has been described as complex and difficult to be quantitatively operationalised, physical asset specificity is typically portrayed as an asset specificity type whose assessment is *"relatively straightforward"* (Williamson, 1996, p. 108). Physical asset specificity could be defined as investments (made by one or both parties) in physical assets that are tailored to that transaction and, hence, have little alternative uses due to their specific (design) characteristics (Williamson, 1983; Joskow, 1987, 1988; Morill and Morill, 2003). One interesting example of such specificity type was the one cited by Milgrom and Roberts (1992) and which refers to the investments made by a 'Boeing' supplier for wing manufacturing facility. Due to the customisation of these wings to a specific Boeing plane, the facility would have little value in other wing trading relationships. Another example is a pipeline constructed by a mining company from its premises to the property of a particular purchaser (Deegan, 1997). This example, however, involves also some elements of another type of asset specificity, this being *site specificity* which will be discussed later.

Among the studies in our review, physical asset specificity was the second most frequent type of asset specificity considered in the opeartionalisation of the construct. Table 2.11 presents the different measurement approaches that were employed.

Table 2.11: A review of physical asset specificity measurement approaches

	Party	Measurement Approaches	Source
Physical Asset Specificity	Supplier Party	Uniqueness and specialization of equipments, components and facilities that are required for the purpose of the transaction relationship	Klein and Roth (1990); Stump and Heide (1996); Walker and Poppo (1991)
		Specificity of the required physical assets to the activity or application being transacted	Masten *et al.* (1991)
		Scope of work contents of subcontracting	Nishiguchi (1994)
		Highly standardised .V. *Highly specialised* Extent of component complexity	Masten (1984) Monteverde and Teece (1982);
		Possibility of using the required physical asset in other applications outside the relationship	Lyons (1995)
		% of supplier equipment that would need to be scrapped should the relationship cease	Ghani and Khan (2004)
		Extent of investment made by supplier in physical assets tailored to the relationship	Heide and John (1990); Murray and Kotabe (1995, 1999); Weiss and Anderson (1992), Klein *et al.* (1990); Lieberman (1991); Bucklin and Sengupta (1993)
		Final contract value / seller-firm sales on year contract completed	Adler *et al.* (1998)
		Minimum efficient size required / Industry sales RandD Expenditure	Levy (1985)
	Buyer Party	Extent of investment made by buyer in physical assets that are tailored to the relationship	Heide and John (1990); Heide and John (1992); Bucklin and Sengupta (1993),
		Extent of the specialised tools required in dealing with the supplier	Heide and John (1992)

One obvious way to assess the extent of physical asset specificity is to measure the uniqueness of equipments and tools required by the supplier for the purpose of the transactional relationship through the use of multi-items scale reflecting the degree of their specificity to the relationship in general (Klein and Roth, 1990; Stump and Heide, 1996; Walker and Poppo, 1991) and to the activity or service being transacted in particular (Masten *et al.*, 1991; Nishiguchi, 1994). Nevertheless, given the total reliance of this measurement

approach on the perception of respondents, most studies have chosen to operationalise the physical asset specificity in terms of the extent of the actual investments in physical assets made by suppliers specifically for the purpose of the transactional relationship (Heide and John, 1990; Murray and Kotabe, 1995, 1999; Weiss and Anderson, 1992; Klein *et al.*, 1990; Lieberman, 1991; Bucklin and Sengupta, 1993). Masten (1984) considered component complexity an important factor in reflecting the degree of physical asset specificity. Yet, while the complexity feature is in most cases correlated with the degree of asset specificity, the two factors remain, according to Malone *et al.* (1987, p. 486), *"logically independent"*.

Although all these approaches help us to obtain a partial indication of the degree of physical asset specificity, such proxies fail to depict whether or not investments in physical assets possess an alternative value outside the transactional relationship (Shelanski and Klein, 1995). Lyons (1995) addressed this issue by incorporating in his measurement approach the possible redeployment of those physical assets in other applications outside the relationship. The extent of redeployment has been negatively linked, by Gahni and Khan (2004), to the percentage of the supplier's equipments that would have to be scrapped should any of the two parties choose to withdraw from the relationship. The little attention that has been given to the redeployment criterion could be explained by the fact that in some outsourcing arrangements dedicated employees and equipments need to be transferred to the vendor, which reduces the importance of the redeployment factor (Barthelemy and Quelin, 2002).

Other attempts to measure the physical asset specificity construct by means of secondary data instead of primary data, include the studies by both Adler *et al.* (1998) and Levy (1985). The former used the relative importance of the contract value as a proxy for physical asset specificity by dividing the final contract value over the supplier sales of the year the contract was completed.

The latter employed similar but much broader industry level measures by dividing the minimum efficient required size over industry sales. The same study also employed RandD expenditure at the buying firm as a proxy for physical asset specificity. This approach informs the degree of innovation involved and, hence, could be used as an indicator of the potential degree of customisation within the buyer's firm to which the supplier should adopt. These measures, though, should be treated with caution as they are vague and imprecise.

Few studies assessed the physical asset specificity construct from the buyer perspective. They measured the construct in terms of the specificity of physical assets that the buyers had to make in order to support the transaction relationship (Heide and John, 1992) and the consequent degree of investment they incurred (Heide and John, 1990; Bucklin and Sengupta, 1993). The extent of redeployment of these assets has not, however, been considered. Nonetheless, it should be noted that the same redeployment measures employed to the supplier party (for example the one proposed by Ghani and Khan, 2004) could also be applicable to the buyer party.

2.3.2.3 Site specificity

Site Specificity refers to a situation where the buyer and provider are involved in a *"cheek-by-jowl"* relationship with one another due to the importance of close proximity in reducing inventory and other related processing costs and, hence, facilitating the trading relationship between the two parties. Once in place, however, the assets involved are highly immobile and, thus, the cost of their relocation is high (Williamson, 1983; Joskow, 1988; Morill and Morill, 2003; Lamminmaki, 2005). Commenting on the importance of location in such relationships, Ruchala (1997, p. 21) sates that *"without this site, a very inexpensive [transaction] would become very expensive".* A typical illustration of site specificity is the case of some electric generating plants that have chosen to be placed next to particular mines with the expectation of a potential

long-term coal supply relationship with these specific mines (Joskow, 1987, p. 170). Apart from this example of *"mine-mouth"* plants, another interesting example is the outsourcing of restaurant service by hotels where about the subcontractor makes custom-tailored restaurant fitting investments that have little value outside the hotel site (Lamminmaki, 2005).

In our review, it was also revealed that site specificity was less popular than human asset specificity and physical asset specificity, and concerns more the supplier party who is more likely to incur such site-related, non-redeployable, investment. Table 2.12 summarises the few measurement approaches employed.

Table 2.12: A review of site specificity measurement approaches

	Party	Measurement Approaches	Source
Site Specificity	**Supplier Party**	Physical proximity *No of kilometers between subcontractor and the customer premise*	Joskow (1987) Nishiguchi (1994) Ghani and Khan (2004)
		Proportion of inputs shipped within 500 miles of plant	Levy (1985)
		Importance of co-location of facilities or processes	Masten (1984)

Most studies focused their measurement on the physical proximity between the two parties and used the distance between subcontractor and the customer's premises as a proxy for site specificity (Joskow, 1987; Nishiguchi, 1994; Ghani and Khan, 2004). In a similar vein, Levy (1985) made use of secondary data to categorise the degree of site specificity of certain transactions depending on the proportion of inputs shipped within 500 miles of plant. Nevertheless, these studies have not considered in their measurements the possibility to relocate the assets involved in the relationship and they did

not investigate whether or not physical proximity was specifically due to the transactional relationship. Although Masten (1984) touched upon the importance of the location of the facilities involved in the relationship, he did not explicitly measure the degree of their mobility and the potential outcomes of their relocation.

2.3.2.4 Dedicated asset specificity

The distinction between physical and dedicated asset specificity is difficult to articulate (Marshall, 2001). Dedicated asset specificity refers to those assets that are of general purpose as opposed to specialised uses (physical asset specificity) but which have been made for a particular transactional agreement that is likely to entail long term trading relationship. Should this relationship end prematurely, excess capacity will, however, be created (Williamson, 1983; Joskow, 1987; Lamminmaki, 2005). A production contract with one large customer may cause a firm to expand its capacity to meet demand, which would ultimately result in significant over capacity and important financial disruption if the customer in question chooses not to renew the contract (Ruchala, 1997).

Although the majority of studies measured this dimension exclusively in relation to the supplier party, dedicated asset specificity could under certain circumstances be related to an investment made by the buyer (eg. additional investment in laboratory accessories that help firm to assess the quality of a bigger proportion of goods acquired).

2.3.2.5 Temporal specificity

Temporal or time specificity refers to transactional relationships where timing and coordination are of high importance (Lamminmaki, 2005). It could be linked to *site specificity* where the criticality lies on a well-timed response from on-site human assets (Lohtia *et al.*, 1994). According to Malone *et al.* (1987,

p. 486) *"an asset is time specific if its value is highly dependent on its reaching the user within a specified, relatively limited period of time".*

Examples of this asset specificity dimension include inputs that must reach the manufacturing process at a precise time in order to avoid additional costs. One typical illustration of this, which was widely cited in the literature (see Masten *et al.,* 1991; Pirrong, 1993; Lohtia *et al.,* 1994; Lamminmaki, 2005) is the case of shipbuilding construction where the ability to hold buffer stock is limited and, hence, timely delivery within the transaction relationship becomes vital to prevent costly delays. In the hotel industry, temporal specificity could be described as high in the case of laundry and cleaning outsourcing (Lamminmaki, 2005).

In cases of high temporal specificity, firms engaging in outsourcing might, therefore, be vulnerable to opportunistic behavior from the part of suppliers who can opportunistically threaten to suspend delivery at last minute (Masten *et al.*, 1991, p. 9).

Our review indicates that only few studies have attempted to measure the degree of temporal specificity. Masten *et al.* (1991) employed the need for precise scheduling within the transactional relationship as a proxy for temporal specificity. Lamminmaki (2005) associated the construct to the importance of timely delivery of clean linen in the hotel industry. In carrying out their survey concerning public managers' perceptions of the degree of specificity within 64 common municipal services, Brown and Potoski (2005) measured temporal specificity by asking respondent, using five-point Likert scale, to rate the requirement that the service reach the user within a relatively limited period of time in order to prevent any deterioration in the quality of the service in question. By its nature such investment could only be incurred by the service receiver (the buyer's side) who, by engaging in an outsourcing relationship,

could run the risk of a last-minute delivery suspension or delay (Masten *et al.*, 1991).

2.3.2.6 Brand name capital

Brand name capital could be directly related to reputation investment. Indeed, a transactional relationship, which involves activities that could have a direct and high effect on the overall firm reputation, could be described as of high brand name capital specificity. In such case, the subcontractor (the supplier) could find itself in a position enabling it to intentionally or unintentionally cause damage to the firm's (the buyer) reputation (Gatignon and Anderson, 1988; Lohtia *et al.*, 1994; Lamminmaki, 2005). A typical example of this is the outsourcing of restaurants within the hotel industry, where a bad reputation could prove to be very costly to the overall hotel business (Lamminmaki, 2005). Since some industries are more reputation sensitive than others, the degree of the brand name dimension's effect could, hence, depend on the type of industry within which the transactional relationship is taking place.

Nevertheless, the idea of reputation could actually be reciprocal as any underperformance from the subcontractor side could result in its own reputation being affected. As such, and against TCT's line of thinking, the presence of capital brand could actually serve to safeguard against, rather than encourage, any opportunistic behavior from both sides within the transactional relationship since each party has its own reputation to protect (Lamminmaki, 2005). Both Levy (1985) and Gatignon and Anderson (1988) measured the degree of brand name capital by the extent of advertising expenditure intensity calculated using the advertising/sales ratio.

2.3.2.7 Procedural asset specificity

Zaheer and Venkatraman (1995, p. 377) were the first to fully develop and measure the construct in an attempt to capture the physical asset specificity

dimension in the service industry, where considerable investment in physical components and tools are unlikely to be involved. The term refers to the organisation routines and workflows that are tailored to a particular transaction relationship and which are difficult to modify once created or redeploy to other purposes inside the firm without a reduction in their value. The same could also be referred to as *"relational specificity"* which is an equivalent type of asset specificity that has been cited by Barthelemy and Quelin (2002, p. 6).

Although the concept, as articulated by Zaheer and Venkatraman (1995), was originally employed to cover for the lack of attention given to the potential effect of the asset specificity concept within the service industry, procedural asset specificity has found its use stretched to other industries including the manufacturing ones. Indeed, with the exception of Barthelemy and Quelin, 2002, although most papers have not treated procedural asset specificity as a separate type of specificity and have not directly stated the term, many researchers seem actually to have included, either intentionally or unintentionally, this concept in their operationalisation of the asset specificity construct despite the fact that their research setting was not specifically a service industry (eg: Stump and Heide, 1996; Klein *et al.*, 1990; Heide and John, 1992). Table 2.13 recapitulates the procedural asset specificity measurement approaches.

Table 2.13: A review of procedural asset specificity measurement approaches

	Party	Measurement Approaches	Source	Industry
Procedural Asset Specificity	Supplier	Degree of adaptation of the task to be performed to the peculiarities of the buyer	Rodriguez and Padilla (2005)	Service Industry *hotel industry*
		Degree of customisation of supplier workflows and routines (degree of specialised *forms*, *manuals*, *procedures*, etc...)	Zaheer and Venkatraman (1994-1995)	
		Extent of investment made by supplier in procedures and routines that are tailored to the relationship	Heide and John (1990)	Component Manufacturing
		Difficulty to learn the buyer's *ways of doing things*	Klein *et al.* (1990)	Several industries
		Required adaptation of the production process and system including customised routines and procedures	Stump and Heide (1996)	Chemical Manufacturing Industry
	Buyer	Degree of customized product system required to deal with the supplier	Heide and John (1992)	Manufacturing Industry *components manufacturing)*
		Extent of investment made by the buyer in procedures and routines that are tailored to the relationship	Heide and John (1990)	
		Extent to which dealing with providers implied changes for: 1) the other employees in the buying firm 2) the overall functioning of the client firm	Barthelemy and Quelin (2002)	Several industries

As can be seen from the above table, the procedural asset specificity measurement approaches focused on the degree of customisation of the supplier routines and workflows to the peculiarities of the buying firm, which has been assessed using a multi-item scale approach reflecting the respondents' perceptions (Zaheer and Venkatraman 1994, 1995; Rodriguez and Padilla, 2005; Stump and Heide, 1996). Along these lines, Heide and John (1990) considered the extent of investments that suppliers had to incur in order to develop such customized routines, which has been associated by

Klein *et al.* (1990, p. 202) with the difficulty to learn the buyer's *ways of doing things.* Nevertheless, it should also be noted that the same situation could be applicable to the buying firm which can find itself in circumstances where it has to adapt its procedures and routines for the sake of the transaction relationship (Heide and John, 1990, 1992; Barthelemy and Quelin, 2002). Therefore, any attempts to measure procedural asset specificity should take into account both perspectives.

Again, whether or not these customised routines and workflows could possess a general purpose and could, therefore, be redeployed to other functions within the firm, has not been taken into account in the measurement of the construct.

2.3.3 A validity assessment of asset specificity measurement

While most studies have operationalised the asset specificity concept focusing either on its procedural level or relying on one ore more elements of Williamson's typology, a number of authors have chosen to measure the specificity construct at its broad level. Such broad measures could be used as a kind of validity assessment of the overall degree of asset specificity in a given transactional relationship.

Placing emphasis on the importance of the identity of the two parties, most papers tried to assess the degree of dependence involved in the relationship and the consequent level of significance in relation to the continuity of that relationship. In so doing, a number of authors employed the extent of resources (in time and money) required to switch partner as a proxy for the degree of dependence and for the extent of the *lock-in* situation involved in the relationship (Heide and John, 1988; Dragonetti *et al.*, 2003; Maltz, 1993, Barthelemy and Quelin, 2002; Poppo and Zenger, 1998; Rodriguez and Padilla, 2005), which could be associated with the level of potential difficulties raised by one of the partners in case of contract termination (Weiss and

Anderson, 1992). While the above studies used primary data in their measurement, other studies that relied on secondary data include Mol and Gedajlovic (2001). The latter measured asset specificity in broad terms by dividing total investments by the industry over total turnover of the industry. Nonetheless, although Mol and Gedajlovic (2001, p. 11) argue that this method *"provides a consistent and theoretically appropriate measure of the level of asset specific investments in a given year"*, such measurement approach should be employed with caution since it only provides an evaluation of the degree of specificity at the industry level with no regard for the specific relationship involved in the transaction. In his study of vertical integration by electric utilities into coal production, Joskow (1987) employed a similar but more precise measurement approach by dividing the total plant utilisation of coal over its total utilisation by the utility.

2.4 Outsourcing performance

Given the lack of agreement over outsourcing outcomes and their measurement, this section tries to provide a review that synthesises and integrates various outsourcing performance measurements that have been employed by key empirical studies. Table 2.14 presents a summary of different measures employed by different studies.

Table 2.14: Summary of outsourcing performance measurement methods

Source	Measurement Methods	Types of measurement		Mode	Key Informant
		Qualitative strategic	Quantitative accounting		
Goodman *et al.* (1995)	*Overall satisfaction Product characteristics, Delivery pbs, inquiry handling (communication), *Intention to switch vendor	X		Questionnaire	Not specified
Poppo and Zenger (1998)	*overall cost *quality of output *responsiveness to problems	X		Questionnaire	Senior (IS) Manager
Lee and Kim (1999)	*Impact on business performance (degree of achieving the expected strategic, economic, and technological benefits) *User satisfaction (reliability, relevancy, timeliness, accuracy, currency, and completeness of information from the perspective of the end-customer)	X		Interview preceded by questionnaire	Representatives in charge of IS operations
Grover et al. (1996)	*satisfaction with strategic, economic, and technological outsourcing benefits Provider's contribution to: i) focus on core business ii) increasing IS competence iii) increased access to skilled personnel iv) economies of scale v) control of IS expenses vi) avoidance of obsolescence risk vii) increase access to key IT. *service quality i) tangible (physical facilities) ii) reliability (ability to perform service dependable and accurately)	X		Questionnaire	IS Top Executives
Saunders et al. (1997)	4 dimensions: i) economic ii) Technological iii) strategic	X		Interview	Managers that signed / administrated

	iv) overall satisfaction with contract outsourcing success = f (tight contract+ partnership)				IS outsourcing agreement
Wang (2002)	Cost and benefits attained by the outsourced activity Based on Grover et al. (1996) outsourcing success scale: *strategic, economic, technological*	X		Questionnaire	Chief Information Officer (CIO)
Gilley and Rasheed (2000)	Firm performance 5-point Likert scale *Financial indicators* Return on asset, Return on sales, and overall financial performance compared with similar firms in their industry for 2 periods (last 12 months and 5 years ago) *Non-financial performance* relative to their competitors i) process innovation ii) product innovation iii) employee compensation iv) job satisfaction v) customer relations vi) supplier relations	X	X	Questionnaire	Double respondent (CEO) + Another Executive chosen by the CEO
Rodriquez and Padilla (2005)	*Performance of the activity being outsourced 7-point Likert Scale *a) satisfaction with cost* degree to which cost improvement was better or worse than expected *b) satisfaction with quality* the extent to which the activity needs further improvement *Organisation performance Subjective measurement a) efficiency b) effectiveness c) adaptability d) quality e) satisfaction	X		Questionnaire	Hotel Manager
Murray and Kotabe (1995)	Market performance was defined relative to the product's three largest competitor's i) market share ii) sales growth rate iii) Return on sales iv) return on investment		X	Questionnaire	Top and Middle Managers

Mol and Gedajlovic (2001)	*Firm performance* a) R.on sales = Net profit/ total sales reflects financial performance of business unit b) Market share sales this year over total sales in 3-digit industry market performance of a business unit		X	Secondary data	(Na) Secondary Data
Lever (1997, p. 39)	*3 subjective measures* (a) satisfaction with the activity (b) effectiveness of the activity (c) No of complaints in relation to the activity	X		Questionnaire	Top HR Executive
Lacity *et al.* (1996, p. 15)	*7 measures for outsourcing success* 1. Extent of achievement of cost savings 2. service level maintained or improved 3. satisfaction of client 4. No of disputes between vendor-client 5. degree of responsiveness and attention made by vendor 6. do outcomes matches objectives 7. was the contract renewed	X		Interview	CIO
Aubert *et al.* (1999)	Degree to which undesirable outcomes have occurred or are likely to occur	X		Interview	CEO
Lacity and Willcocks (1998, p. 367)	Degree to which expected cost savings were achieved (indicator of success)		X	Interview	CEO and IT Managers

***Note**: Extracts from questionnaires are included in Appendix 2.4*

As can be seen from the above table, the studies that were included in our review made use of two broad types of outsourcing performance measurement: quantitative accounting and qualitative strategic type measures. While the former deals with cost savings and financial performance, the latter relates to strategic benefits, including the quality of the service received.

As far as the former is concerned, a number of papers (Murray and Kotabe, 1995; Mol and Gedajlovic, 2001; Gilley and Rasheed, 2000) made use of accounting ratios such as return on sales, market shares, sales growth rates and return on investment. Since these market-performance measures fail to address the outsourcing strategic dimension (discussed earlier in section 2.2.1) and since performance objectives may differ from one firm to another, this kind of measures are unlikely to reflect the true objectives of responding firms and, hence, capture the real dimension of their outsourcing performance. In addition, these accounting measures should be benchmarked against the firm's competitors, which is difficult to do in practice.

For these reasons, other papers have chosen to rely on more qualitative measures, which fall into two broad categories. These are the degree of realisation of the expected benefits and the overall satisfaction with outsourcing performance (Lee and Kim, 1999). The former was divided in most cases into strategic, economic and technological benefits (Saunders *et al.*, 1997; Lee and Kim, 1999; Wang, 2002). The latter was divided into three subjective measures; these being: (i) satisfaction with the outsourced activity; (ii) effectiveness of the activity; and (iii) number of complaints in relation to the activity (Lever, 1997; Rodriguez and Padilla, 2005). Nevertheless, since different firms might have different reasons for outsourcing (*the why*), studies based uniquely on assessment of benefits realised may portray an unreliable picture of outsourcing success. Some studies (eg. Lacity and Willcocks, 1998) have even chosen to base the measurement of outsourcing success uniquely on the most cited expected outsourcing outcome: *expected cost savings*. Certainly, used alone, such measure cannot encapsulate the full dimension of outsourcing success.

It appears evident to the author that an additional set of measures that take into account the post-outsourcing management phase and precisely the buyer-supplier relationship should also be considered. Indeed, one recurrent

issue that became apparent while reviewing the literature was the clear recognition across both process and outcome research streams of the strategic role that the buyer-supplier collaborative ties play in outsourcing. Therefore, empirical studies willing to investigate a causal relationship that involves outsourcing performance should take into consideration the degree of collaborative ties (involved in the outsourcing relationship) and ultimately control for its effect on outsourcing performance. Measures of collaborative ties could include the degree of assistance and information sharing (Ghani and Khan, 2004), as well as responsiveness to raising queries and problems (Lacity *et al.*, 1996; Poppo and Zenger, 1998).

2.5 Concluding remarks

The initial mapping of the outsourcing literature distinguished between the process and outcome-oriented studies and highlighted the empirical under-representation of the latter. Within this type of literature, Transaction Cost Theory and its related notion of asset specificity appeared to be prominent, albeit still requiring greater empirical attention. The second part of the chapter focused on the notion of asset specificity, clarified its defining features, and critically discussed past attempts at its operationalisation. This part of the chapter concluded that asset specificity is a multi-dimensional construct deserving disaggregated empirical attention. The chapter ended with a discussion of the various measurements of outsourcing performance.

CHAPTER THREE: DEVELOPMENT OF THE RESEARCH MODEL AND HYPOTHESES

3.1 Chapter overview

By offering a critical review of the outsourcing-related literature, the previous chapter drew attention to the lack of empirical work at the outcome-oriented level in general and of the effect of asset specificity on outsourcing performance in particular. Studies that deal with asset specificity and / or outsourcing performance were, thereafter, discussed and a number of issues related to the operationalisation of their various dimensions were highlighted.

Using the twin lenses of the transaction cost theory and the strategy-related literature, this chapter distils a number of hypotheses in relation to the impact of asset specificity upon outsourcing performance, which will then, be used to develop the research model to be tested.

3.2 Transaction cost theory, asset specificity and outsourcing

From the critical mapping of the outsourcing literature carried out in the previous chapter (see Table 2.1), Transaction Cost Theory (henceforth TCT) emerged as the dominant theoretical explanation for the outsourcing phenomenon. The theory could be traced back to Coase's (1937) seminal work which displayed the first attempt to formulate a theory of the firm and to introduce the puzzling dilemma in relation to why economic activities were organised within firms. Adding more predictive power to this line of thinking, Williamson (1971, 1975) complemented the Coasian work by firstly linking the transaction to vertical integration and subsequently by identifying particular transaction characteristics under which a 'hierarchy' would be the preferred governance option (Williamson, 1979, 1985).

The transaction cost treatment of vertical integration seems to have proceeded in stages during which developments in a series of key themes have progressively taken place. The first and most influential was the general theoretical argument that constitutes a verbal statement of the theory basic assumptions and a claim that *"a priori case for the vertical integration of production exists"* (Williamson, 1971, p. 122). This was, then, given dimensional characterisation in which a number of transaction attributes were described as playing an important role in comparative governance choices (Williamson, 1979). Mathematical opeartionalisations and empirical elaborations were, thereafter, introduced (eg. Masten, 1984; Riordan and Williamson, 1985; Joscow, 1987; Heide and John, 1990; Klein *et al.*, 1990; Poppo and Zenger, 1998).

Williamson presented TCT as a theory that is based on two key behavioural assumptions, being *opportunism* and *bounded rationality*. The former is interpreted as *self-interest with guile* (Williamson, 1985, p. 47), while the latter entails that human actors are *intendedly* rational but only *limitedly* so (Simon, 1976). The central outcomes or implications of these two key behavioural assumptions are: (i) *complex* contracts are inevitably incomplete due to bounded rationality; (ii) relying on *contract-as-promise* is likely to result in hazards caused by opportunism; (iii) added value is expected from economising on bounded rationality and safeguarding against likely opportunism (Williamson, 1999a). In other words, because transacting parties are unable to fully predict all possible future scenarios due to bounded rationality, they cannot draft fully specified contracts and, hence, contracts will inevitably be incomplete. Under such conditions, one party may act opportunistically and exploit contract ambiguities to its own advantage and, consequently, at the other party expense. To minimise such opportunism, higher transaction costs including costs of drafting, negotiating, and maintaining contractual relationships (*Ex-ante*), and costs of monitoring contractual performance, enforcing contractual promises and dealing with any potential contract breaches (*Ex-post*), must all be incurred (Brown and Potoski, 2005). As such the firm would be regarded as the better option given its ability to economise on transaction costs through its

natural and more efficient internal control mechanism which stems from both its 'constitutional authority' and its 'conflict resolution machinery' (Williamson, 1971). Indeed, while within a firm disputes between parties can be dealt with by *'fiat"*[1], in market transaction parties will have to turn to law and legal system; which reduces the efficiency of markets as compared to firms (Klein et al., 1978). As such, it could be argued that TCT is emphasising the role of the firm as an opportunism restrictor (Plunket and Saussier, 2003).

> *"Distinctive advantage of the firm, however, is the wider variety and greater sensitivity of control instruments that are available for enforcing intra-firm in comparison with inter-firm activities. Not only does the firm have the constitutional authority and low cost access to the requisite data which permit it to perform more precise own-performance evaluations than can a buyer, but its reward and penalty instruments are more refined. Especially relevant in this connection is that, when conflicts develop, the firm possesses a comparatively efficient conflict resolution machinery. To illustrate, fiat is frequently a more efficient way to settle minor conflicts than is haggling or litigation".*
>
> (Williamson, 1971, pp. 113-114).

The inclusion of such behavioural assumptions, which were directly related to the nature of human beings, was important since it marked a departure from a straightforward analytical economic perspective to a more psychological one (Foster, 2000).

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[1] *"Fiat has its origins in the employment contract"* (Williamson, 1991, p. 274)... *"The contract law of internal organisation is that of forbearance according to which a firm becomes its own court of ultimate appeal. Firms for this reason are able to exercise fiat that the markets cannot. This [in turn] influences the choice of alternative modes of governance"* (Williamson, 2002, p. 178) *"as costly haggling could be avoided"* (Williamson 1985: 76). (For more explicit details of the term 'fiat', see Williamson, 1991, p. 274-275).

Upon further reflection and following this general statement which places transaction at the heart of firm boundary choices, Williamson (1979, 1983) added a *dimensional characterisation* to his initial theoretical statement through the identification of three principal attributes with respect to which transactions differ and upon which boundary or governance choices would be made. These include *frequency* with which transactions recur, the *uncertainty* to which transactions are subject to, and the level of *asset specificity* involved in transactions. Although all these exchange characteristics can be important, this thesis focuses primarily on the latter which was subsequently described by Williamson as the most significant dimension to which *"TCT owes much of its predictive content"* (Williamson, 1985, p.56) and on which *"a good deal of TCT's explanatory power turns"* (Williamson, 1999b, p. 1089). The importance of asset specificity has been empirically backed by Shelanski and Klein (1995) who found that governance choices are mainly determined by the level of asset specificity involved in the transaction exchange.

TCT postulates that transactions requiring high level of asset specificity increase the risk of opportunistic behaviour that stems from the post-contracting bargaining power and the threat of terminating the contract (Klein *et al.*, 1978). Given the bounded rationality assumption, firms will have to incur extremely high transaction costs in both the formulation of appropriate contracts (*Ex-ante*) and the post-outsourcing close monitoring costs (Ex-post) in an attempt to be safeguarded against any potential opportunistic behaviour. Thus, the involvement of high asset specificity raises dramatically the transaction costs in relation to market governance (Williamson, 1985) of which *outsourcing* is a typical example.

Failure to be fully safeguarded (not unlikely given the bounded rationality assumption which leads to incomplete contracts), would mean that the party incurring highly specific investments that are not redeployable in nature, will be locked into the transaction, hence leaving itself vulnerable to opportunistic behaviour from the other party which, in turn, could choose to use its bargaining power in an attempt to lower the expected quality or

raise the agreed price to the detriment of the overall outsourcing performance. This creates what Williamson describes as *a monopoly relationship* whereby the disadvantaged party faces the unpleasant choice of continuing to work with its opportunistic partner or forgo the expected value of its specific investment (Monteverde and Teece, 1982; Anderson and Coughlan, 1987). For example, in the flexible packaging industry[2], a firm could choose to outsource the extrusion activity of its polypropylene (PP) products and in so doing may make investments in some kind of software program enabling the direct placement of orders as demands for PP packaging products from their own customers arise. Given the nature of flexible plastic packaging products which require high customisation (due to differences in thickness, colour, width, type of printing) and high speed of delivery, the program would allow the firm to pass its requirements to its outsourcing supplier in a quick manner as orders from their own customers come through. However, because of its low salvage value outside that particular transaction relationship, such investment makes it costly to the flexible plastic packaging company to switch to a new supplier. The supplier, knowing that the buyer is somewhat 'locked-in' to the relationship, may have an incentive to behave opportunistically. For example, the PP plastic rolls supplier could demand price increases and insist on renegotiating its contract after the flexible plastic manufacturing (the buyer) has had irreversibly committed itself to the exchange. Thus, such investments could make the buyer vulnerable to opportunistic behaviour, hence negatively affecting the outsourcing performance unless appropriate but generally highly costly safeguard mechanisms (due to bounded rationality) can be designed (Klein *et al.*, 1978; Williamson, 1985).

An additional example that is worth citing is one to do with software outsourcing that requires a high level of specific know-how and, therefore, involves high human asset specificity. Such specific investments may not only lead to likely opportunistic behaviour from the buyer but also to potential underinvestment in human asset specificity from the supplier

[2] The industry in which the author spent two years working

during contract execution in an attempt to minimize the extent of potential hazard in case of opportunism (Wang, 2002). Such underinvestment may well indirectly affect the quality of the service received by the buyer and, consequently, negatively affect outsourcing performance. As such, in accordance with TCT, it follows that, investments of high asset specific content in a given outsourcing relationship may lower the expected benefits of the outsourcing transaction to the detriment of the overall quality of the relationship.

On the basis of the above discussion, and disaggregating by buyer-supplier asset specificity dimensions as suggested by Lohtia *et al.* (1994), the following hypotheses are proposed:

Hypothesis 1a: An increase in buyers' asset specificity across different dimensions of non re-deployable investments, in a given transactional outsourcing relationship, will negatively affect outsourcing performance.

Hypothesis 1b: An increase in suppliers' asset specificity across different dimensions of non re-deployable investments, in a given transactional outsourcing relationship, will negatively affect outsourcing performance.

Nevertheless, many scholars have challenged TCT's basic assumption regarding opportunistic behaviour and the resulting hierarchical governance structure when highly specific assets are involved in a transaction. According to Hill (1990), the transaction cost rationale for internalisation has been overstated and has not taken into account the fact that, in the long run, *the invisible hand* of market forces 'erases' actors whose behaviour is habitually opportunistic. In fact, over time, cooperative rather than opportunistic behaviour will prevail since any mal-adaptation that hinders the transactional relationship or any internalisation as a response to the threat of opportunism, is likely to ultimately dissipate some

of the quasi rent that is inherent in a transaction supported by specific asset investments. An additional critique places emphasis on the important role that suppliers' *reputation* could play in minimising opportunistic behaviour in case of high specificity involvement in the outsourcing transaction relationship (Joskow, 1985; Coase, 1988; Ring and Van De Ven, 1992). Indeed, as argued by Klein and Leffler (1981) both parties in an exchange have their reputation to protect and any attempt to renege on the contract is likely to be accompanied by an adverse effect on their reputation. Moreover, although the value of incorporating concepts, such as partnership and trust into the transaction cost reasoning, is debatable (Williamson, 1993), recent studies highlight the importance of these concepts in increasing our understanding of outsourcing performance (Lee and Kim, 1999; Murray, 2001). Furthermore, Conner and Prahalad (1996) stress that opportunist-free behaviour will not necessarily lead to market contracting. Knowledge-based considerations must also be taken into account. They argue that it is differences in knowledge rather than the presence of opportunism which dictates the decision of the governance mode. A common theme that cuts across the above critiques is that they all come from the strategy-related literature which would be considered in more detail in the following section.

3.3 Strategy-related literature, asset specificity and outsourcing

At the opposite end of the economic explanation of the firm and its boundaries (which places emphasis on transaction efficiency) we can position the strategic literature inspired by Penrose's (1959) seminal work in management research on resources and competencies. Within this tradition, researchers have been trying to analyse the effect of strategies such as *outsourcing* on firm's competitiveness, from a range of perspectives in terms of concepts such as strategic competency (Hamel and Prahalad, 1990; Cox, 1996), the knowledge-based view (Grant, 1996), dynamic capabilities (Teece, *et al.,* 1997), and the learning organisation (Nonaka, 1994). For the purpose of this thesis and in order to prevent any

confusion, the author has chosen to assemble all of these distinct yet interrelated theoretical streams under one common umbrella called *the strategy-related literature*. The multifaceted application of these concepts and the lack of consistency in their use could partly be explained by the fact that the strategy literature is still far from being a coherent perspective (Foss, 1996). This, in turn, could be due to both its epistemic content (Foss, 1996) and its eclectic nature. This terminological ambiguity within the strategy-related literature has also been noted by Tsang (2000, p. 216) who wrote:

> *"There is a considerable amount of terminological ambiguity in the RB literature. Theorists have used concepts such as resources, assets, competencies, and capabilities in a rather liberal manner and sometimes, different meanings are attached to the same concept by different theorists"*

Although this collection of strategic concepts does offer significant insights with respect to outsourcing beyond the economic considerations of TCT (see section 3.2.1), the strategy-related literature does require further analysis since it offers various streams each of which could potentially complement and enrich the transaction cost explanation of the role of asset specificity in outsourcing. This study identifies three different streams of strategy-related literature that could inform the relationship between asset specificity and outsourcing performance.

The First stream of strategy-related literature: *"The core competence approach"* (Asset specificity as a core competence)

The first stream of strategy related literature redefines asset specificity in terms of a *core competence* that distinguishes the firm from its rivals (Reve, 1990; Cox, 1996). The idea of core competence and its relationship with outsourcing decisions could be originally related to the study of Hamel and Prahalad (1990) in which they warn of the potential danger of

measuring competitiveness in terms of price. This has been followed by the work of Quinn and Hilmer (1995) where the need for firms to focus its resources on a set of core competence is clearly underlined. Schoemaker (1992) contends that core competences have to be distinctive, durable, controllable and able to generate success. This view has been echoed by Grant (1996) who argues that higher specificity generates specific knowledge, culture, and routines that are difficult to imitate and the accumulation of which results in core competence that enhances internal efficiency and coordination. Indeed, Sony's core competence in miniaturisation and Canon's core capabilities in optics and imaging, for instance, have allowed the two companies to become significant players in their respective markets (McIvor *et al.*, 1997; McIvor, 2000). Capitalizing on the work of Reve (1990), Cox (1996, p. 61) defines high asset specificity as follows:

> *"High asset specificity refers to the skills and expertise that are the core competences of the firm in sustaining their position to make profit in a market. These transactions should always be undertaken within the firm if it is to retain its ability to make profits".*

The above quote clearly demonstrates that at least one strand of the strategy literature equates the notion of asset specificity to that of core competence. Whilst this could be seen as a gross distortion of the TCT meaning of asset specifcity, the same idea has been put forward by Espino-Rodriguez and Padron-Robaina (2006, p. 55) who contend that:

> *"The RBV considers that the firm must possess unique resources that enable it to achieve competitive advantage. This uniqueness can be seen in terms of specificity (Williamson, 1991)... Therefore, when the activity to be outsourced comprises idiosyncratic resources, relying on external sources to develop those specific relationships may be very costly... Thus one can*

conclude that both perspectives [TCT and RBV] determine the organizational boundaries depending on the possession of specialised assets, equipment or routines, and specific skills, although they differ in their approaches."

Indeed within this stream of the strategy-related literature, firm's advantage over market has been described as having nothing to do with mitigating opportunism hazard. Instead, it is said to derive from the firm ability to supply shared values, language and coding schemes (the 'higher order organizing principles' described by Kogut and Zander, 1992) which the market supposedly cannot supply. Indeed, according to Coff (2003) transfer within the firm is facilitated by shared language which generates a bundle of distinctive capabilities, the accumulation of which creates core competence. The latter must be protected by firms by *'sticking to their knitting'* and, therefore, outsource only those activities which are considered 'non-core' (Hamel and Prahalad, 1990; Quinn and Hilmer, 1995; Razzaque and Sheng, 1998). Based on this line of thinking, the reason for internalising an activity shifts from market failure (highlighted by opportunistic behaviour according to TCT) to firm's superior capabilities stemming from the distinctive ways through which activities are performed within firms (Teece et al., 1997) which in turn can be a valuable source of competitive advantage (Conner, 1991; Barney, 1991). As such, the rationale for internalising an activity or a function has been redefined from *"an avoider of a negative"* (avoider of opportunism) to *"a creator of a positive"* (Conner, p. 1991, p. 139).

If we were to distill any hypothesis based on the above stream of thinking, it would be:

Hypothesis 2: There is a positive relationship between the internalisation of activities, under asset specificity conditions (core competence) and firm performance.

Nevertheless, since our primary focus in this thesis is directed towards outsourcing rather than internalisation, it becomes particularly useful for the purpose of this research to consider the mirror-image of hypothesis 2 so as to re-direct attention from the benefit of internalising highly asset specific activities (in terms of core competence) to the danger of outsourcing such activities. As such, it should be noted that although the idea that core competences should not be outsourced is questioned by Alexander and Young (1996, p. 117) who argue that *"the conclusion that such activities should not be outsourced is at least open to challenge"*, most academic studies warn of the danger of outsourcing a core competence (eg., Willcocks *et al.*, 1995; Quinn and Hilmer, 1995; Cox, 1996; Quinn, 1999; Kakabadse and Kakabadse, 2000). As highlighted by Rodriguez and Padilla (2005, p. 400) *"activities that are specific should not be outsourced because they are the ones that enable competitive advantage to be developed"*. One example illustrating the danger of outsourcing core competence is the case of IBM, where the company outsourced semiconductor ships to finally find itself at a serious disadvantage vis-à-vis its competitors (Chesbrough and Teece, 1996). Indeed, according to researchers within this tradition, companies should only outsource activities that do not form part of its core competences (Quinn and Hilmer, 1995). This has been backed up by Quinn (1999, p. 12) who contends that:

> *"Once a company develops a true best-in-world core competency, it should never outsource it and may even have to build defensive rings of essential competencies that customers insist it have or that protect its core".*

The danger of outsourcing a core competence has been further corroborated by Poppo and Zenger's (1998, p. 872) research which found that *"significant performance losses accrue as firms choose to coordinate firm-specific [core competence] IS activities in the market"*.

Therefore, based on the above and in accordance with the inference made by Rodriguez and Padilla (2005, p. 400), if asset specificity is to be redefined as a core competence, then the following hypothesis (which could be regarded the mirror-image of hypothesis 2) could be made:

Hypothesis 3: *There is a negative relationship between the specificity (core competence) of the outsourced activity and outsourcing performance*

Nevertheless, the idea of core competence protection through internalisation could be criticised for its *asset immobility* assumption which could become a potential source of rigidities and inertia (Hannan and Freeman, 1989) failing to account for the process by which both individual and common capabilities could be developed through close outsourcing relationships between suppliers and buyers (Lorenzoni and Lipparini, 1999). Indeed, while outsourcing may in some occasions bring about the risk of undermining the isolating mechanisms for protecting competencies, it can represent a valuable source of new knowledge, generating, hence, a positive externality (Baden-Fuller *et al.*, 2000).

These above critiques gave birth to a second stream of the strategy-related literature which, through its emphasis on both the learning potential of outsourcing and the importance of relational capability, seems to introduce a new protection mechanism that differs from the internalisation option that is promoted by TCT when high asset specificity is involved. Indeed, this second stream regards outsourcing as an opportunity for learning by which performance would be enhanced through a process of close relationship and cooperation that would serve as safeguard mechanisms under conditions of high asset specificity (as defined by TCT).

The second stream of the strategy-related literature: Relational exchange and inter-firm collaboration

The potential benefits and capabilities stemming from interactions among firms have only recently begun to attract attention (Lorenzoni and Lipparini, 1999). As such, a growing literature in the strategic management domain has started to focus on the importance of looking beyond the internal firm competence in the search for new resources and capabilities (Eisenhardt and Martin, 2000) bringing about the appearance of the *dynamic capabilities* concept which *"as a coordinative management process opens the door to the potential for inter-organisational learning"* (Teece and Pisano, 1994, p. 545). This is said to have provided a platform upon which a theory of inter-firm collaboration can be built (Grant and Baden-Fuller, 2004). At the heart of this perspective is the idea that in order to keep pace with the changing environment, firm capabilities must constantly be redefined and so do firm's input-output relationships (Loasby, 1998). The implication of this idea on outsourcing has been clearly exemplified by De Vita and Wang (2006) who, drawing on the case of the PC maker Dell, have demonstrated how the velocity of change within industries have brought about the appearance of a new generation of outsourcing that is characterised by less rigid boundaries and where both information and knowledge sharing are facilitated by trust-based cooperative relationships.

This emphasis on organizational networks (of which outsourcing could be an example) as a vehicle for knowledge creation (Grant, 1996) and as a stimulus for capability development, learning and innovation (Axelsson and Easton, 1992; Hakansson and Snehota, 1995; Powell *et al.,* 1996) raises questions over TCT's opportunistic assumption which does not take into account the benefits that can be attained and deployed through intensive relationships that could take place in outsourcing ventures (Zajac and Olsen, 1993; Lorenzoni and Lipparini, 1999; Kakabadse and Kakabadse, 2000). Such *'relational governance'*, as described by Poppo and Zenger (2002), is likely to positively affect transactional exchange (outsourcing) performance (Saxton, 1997; Zaheer *et al.,* 1998).

Indeed, according to Argyres and Liebeskind (1999) the net economic surplus through the tying up of exchange relations could offset the costs associated with the specific investment in exchange relations in which case *"opportunism-independent knowledge-based considerations can outweigh opportunism-related ones"* (Conner and Prahalad, 1996, p. 489). Bearing this in mind and based on the notion of the *"shadow of the future"* (Axelrod, 1984, p. 126), parties within the transaction are, therefore, likely to act with the expectations of future economic relations, which would restrict opportunistic behaviour in the current period. This line of thinking has brought about general agreement between scholars on the assumption that an increased level of relational content in an exchange is likely to encourage cooperation between transactors and thus discourage opportunistic behaviour (Noordeweir *et al.*, 1990). For example, Hill (1990) challenges the recommendation that integration is the best way to deal with opportunism issues that arise due to high specific investments and instead suggests that the construction of a long-term relationship based on cooperation and trust could be optimal. This has been backed up by Chiles and McMackin (1996, p. 88) who maintain that *"the introduction of trust in the TCE model can alter the efficient boundaries of the firm"* by decreasing both the ex-ante and ex-post contracting costs and, hence, economising on the overall transaction costs. Similarly, in the search for an alternative view to Transaction Cost, Zajac and Olsen (1993) make reference to a *transactional value* perspective that is based on joint value maximization and which proposes a set of dimensional processes relevant to creating and claiming value in inter-organisational exchange relationship. In so doing, they claim that:

> *"Strategic and learning gains often increase transaction value while simultaneously increasing transaction costs, [but] the value gains often outweigh the transaction costs efficiency losses* [emphasis added]" (Zajac and Olsen, 1993, p. 143).

Williamson (1999b), himself, acknowledges the importance of learning that stems from close relationships by rejecting TCT's critics in relation to both its static nature (Langlois, 1992) and its over-emphasis on opportunism (Conner and Prahalad, 1996) while admitting the limited contacts which TCT makes with the learning perspective.

> *"A predictive theory of economic organization will be enriched by making more provision for the many ways in which learning influences the inter-temporal governance choice calculus"* (Williamson, 1999b, p. 1104)

As such, the relational exchange stream of the strategy-related literature, which directs attention to the inter-organisational learning and the potential collaborative ties in the buyer-supplier relationship, could offer in some ways a valuable extension to the TCT by taking into account the somewhat neglected notion of transactional value and its potential positive effect on outsourcing performance. Hence, while investments of high asset specificity in a transactional relationship (e.g. outsourcing) may lower outsourcing performance as maintained by TCT (hypothesis 1), collaborative ties among the concerned parties can moderate this relationship and improve outsourcing performance. Thus:

Hypothesis 4: *Collaborative ties in the buyer-supplier relationship will positively moderate the relationship between asset specificity [non-redeployable investments] and outsourcing performance.*

The third stream of the strategy-related literature: Asset specificity leads to collaborative ties which in turn enhances outsourcing performance

An additional strand of the strategy-related literature goes even further by arguing that the conditions under which learning influences the inter-temporal governance choice calculus are outsourcing transactions that are characterized by high asset specificity and which, paradoxically, constitute a significant source of opportunism and inefficiency according to TCT's logic. Indeed, in contrast to the predictions of internalisation under conditions of a high level of asset specificity, empirical studies within this tradition have shown that firms increasingly choose to carry out knowledge-specific transactions through inter-firm close outsourcing relationships (Dyer and Singh, 1998). Along these lines, in his comparative study of the Japanese and the American automobile industry, Dyer (1996) presents greater level of asset specificity within transaction as a differential factor that shapes Japanese competitive advantage over their US competitors and predicts that asset specificity increases productivity. Concerning the same issue and capitalising on the work of Baker *et al.* (2002), Kvaloy (2003) argues that an increased level of asset specificity reduces rather than increases the temptation to renege on outsourcing contracts as the benefit of external trade is diminished due to the high level of specific investment already made. The predicted relationship between asset specificity and close relationship has been empirically backed up by Ghani and Khan (2004, p. 85) study where *"asset specificity was found to be significantly correlated with inter-firm linkages as suppliers who have invested in relationship-specific assets tend to have stronger relationships with their main customer"* and where asset specificity was linked to good relationships in terms of assistance, information sharing and trust. Similar empirical findings were put forward by Anderson and Weitz (1992) where high specific (idiosyncratic) investments in a transaction relationship between two parties were found to be positively related to the commitment of both parties in that relationship. Additional empirical backing can also be found in Chun's (2004) study of e-commerce where asset specificity was

found to be a significant factor in the utilisation of e-commerce leading to a more collaborative relationship between buyers and suppliers.

Since, as outlined in the previous discussion leading to hypothesis 4, a close outsourcing relationship minimises opportunistic behaviour and enhances transaction value through the promotion of learning and knowledge creation, and given the assumption that asset specificity positively correlates with the creation of a close outsourcing relationship (as backed up in the above-mentioned empirical studies), a positive relationship between asset specificity and outsourcing performance could, hence, be expected. Such prediction is supported by Dyer and Ouchi (1993) who, in relation to the Japanese-Style Partnerships (JSP) which Japanese automobile manufacturers employ with their subcontractors, explained the superiority of Japanese firms over their American counterparts by the difference in the level of willingness to make significant customised investments. In so doing, they demonstrated that customised investments in specialized assets by the exchange partners do create incentives for cooperation leading to improvement in exchange performance:

> *"JSPs generally require various types of investments in customized assets (investment specifically related to the relationship) by one or both firms in order to optimize the production and flow of goods and services. Three types of customized investments are employed: 1) site-specific investments; 2) Physical investments; 3) Human capital investments. These partner-specific investments create substantial buyer and supplier switching costs and, once made, make the two parties highly interdependent… However, the investments also create value substantially beyond what could have been achieved without them…outweigh[ing] the costs (risks) associated with being dependent on outside parties."* (Dyer and Ouchi, 1993, p. 56).

Thus disaggregating by buyer-supplier asset specificity dimensions, the following hypotheses are proposed:

Hypothesis 5a: *An increase in buyers' asset specificity across different dimensions of non re-deployable investments will positively affect outsourcing performance.*

Hypothesis 5b: *An increase in suppliers' asset specificity across different dimensions of non re-deployable investments will positively affect outsourcing performance.*

Nevertheless, it should be noted that the extent of possibility that the expected transactional value would be achieved through close relationship and cooperation depends on the skills involved in managing the exchange relationship (Madhok, 2002). Indeed, as argued by Lorenzoni and Lipparini (1999, p. 320) *"the ability to interact and share knowledge with other companies is a distinctive organisational competence"*. Plunket and Saussier (2003, p. 7) make reference to the *absorptive capacity* which transaction parties must be in possession of and in the absence of which knowledge transfer would be too costly to be implemented. In addition, a critical concern in relation to inter-firm cooperation and close relationship is the leakage of knowledge and the risk of losing intellectual property control which could ultimately favour vertical integration over outsourcing (Teece, 1986; Liebeskind, 1996).

3.4 Williamson's TCT extension: the effect of reciprocal investment

Although Williamson (1979, p. 241-242) admits that *"specific exchange relationships which feature personal trust will survive greater stress and display greater adaptability"*, he convincingly challenges the exclusion of opportunism from the explanation of the boundaries of the firm (eg. Conner, 1991; Kogut and Zander, 1992) as it eliminates the need for contract drafting, problem monitoring and reputation investment (Foss, 1996), and, therefore, assumes *myopia* (Williamson, 1999b).

> *"As between myopia and foresight, the competence perspective mainly emphasizes the former... much of the competence literature displays an active aversion to opportunism and places emphasis on what Diego Gambetta[3] has referred to as elusive notion of trust"* (Williamson, 1999b, p. 1094).

Without rejecting the argument that customised investments in transactional relationships should increase the likelihood of co-operation as advocated by many studies (e.g. Kvaloy, 2003; Ghani and Khan, 2004; Anderson and Weitz, 1992), Heide and Miner (1992) warn against the potential negative effect that co-operation could sustain in instances of asymmetrical customised investments.

> *"Customization should enhance the chances of cooperation...Customization should also have a negative effect on cooperation, however. In asymmetrical relationship, the dependency may not be reciprocal, so that one partner has power over the other but not vice versa. In that case, exploitation rather than cooperation might result"* (Heide and Miner, 1992, p. 270).

On the other hand, in a significant extension of Williamson's original framework, Klein and Leffler (1981), Williamson (1983), and Williamson (1996) recognise the increased level of cooperation that is likely to occur when asset specificity is involved and acknowledge the limitation of opportunism as the sole and sufficient explanation for internalisation. In so doing, they describe bilateral exchanges that are characterised by reciprocal investments made by both parties (buyers and suppliers) as an alternative safeguard mechanism. They argue that such reciprocal investments can signal credible commitment by both parties in an exchange relationship and, hence, moderate any potential trading hazard (that could arise from asset specificity) through the creation of *"a mutual*

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[3] Here Williamson (1999b) refers to the work of Gambetta (1988, p. xi).

reliance relation" (Williamson, 1983, p. 528). For example, if X and Y each invest in high asset specificity in approximately the same magnitude, then the potential for opportunistic hold up from one party or the other would be highly reduced by such offsetting investments and would enhance the extent of mutual cooperation (Conner, 1991).

> *"The offer of hostages [caused by highly specific investment] poses a hazard of expropriation. One way to deter this is to expand the contracting relationship from one of unilateral to bilateral exchange...Reciprocity in these circumstances is thus a device by which the continuity of a specific trading relation is promoted with risk attenuation effects"* (Williamson, 1983, p. 530-532).

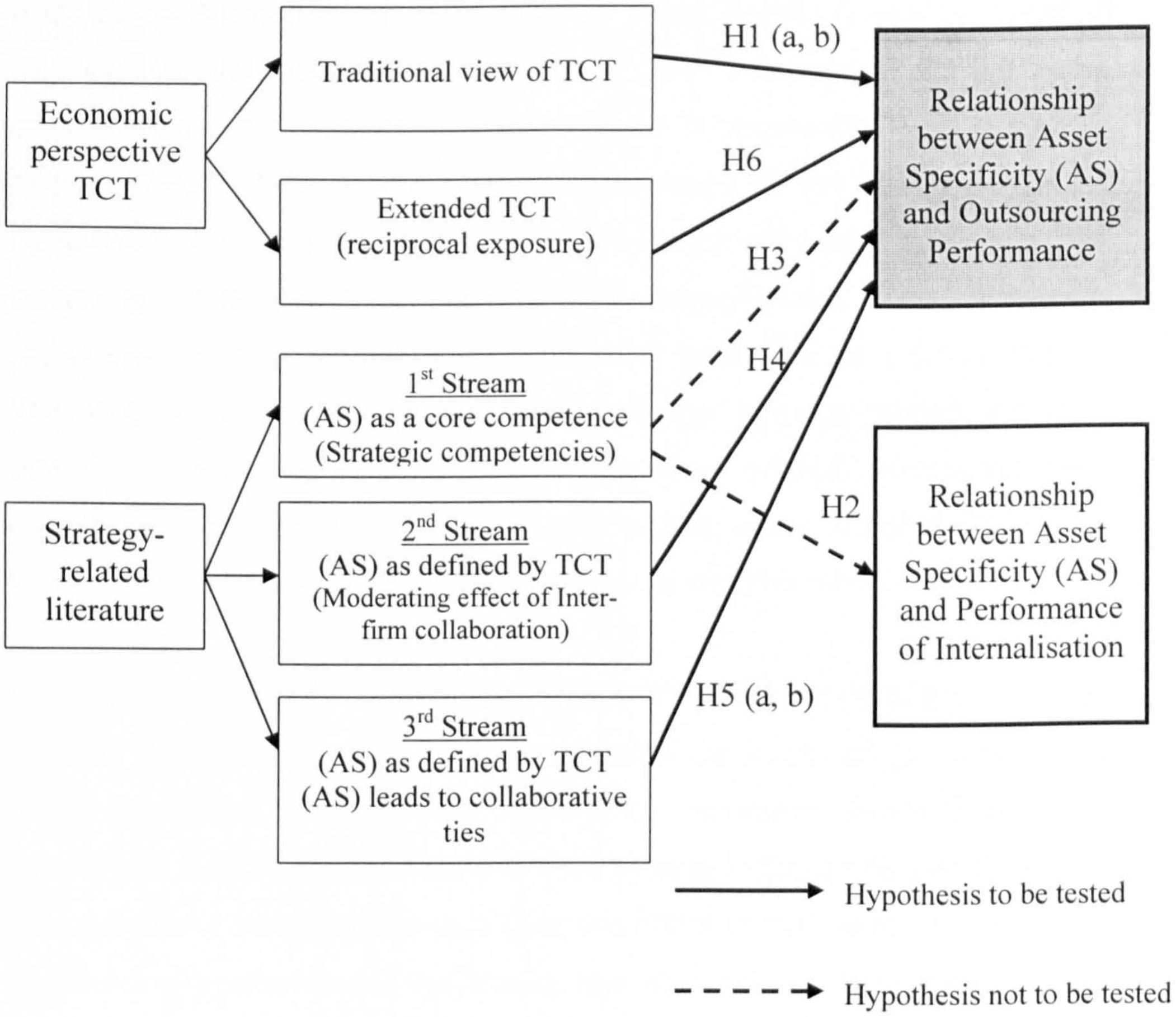
Thus, based on the above discussion, and in line with the notion of reciprocal exposure, the following hypothesis could be made:

Hypothesis 6: *Reciprocal non re-deployable investments in a given transactional outsourcing relationship will have a positive impact on outsourcing performance.*

3.5 The research model

Figure 3.1 provides a schematic summary of the various hypotheses that were distilled using the twin lenses of both the economic transaction cost theory and various streams of the strategy-related literature. Figure 3.1 also highlights which are the hypotheses that fall within the scope of this thesis and will therefore be subjected to empirical scrutiny.

Figure 3.1: Summary of the various hypotheses distilled from both economic and strategy-related perspectives



As can be seen from the above figure, six different hypotheses were distilled from the review of both the economic and the strategy-related literature.

On the one hand, the transaction cost (economic) perspective offers two hypotheses. While the traditional view predicts a negative relationship between buyers-suppliers asset specificity dimensions and outsourcing performance (Hypothesis 1a, 1b), the extended version of TCT, based on the notion of reciprocal exposure, leads to the suggestion that reciprocal, non-redeployable, investments will have a positive impact on outsourcing performance (Hypothesis 6).

Additionally, three different streams were identified from the strategy-related literature. The first stream redefines asset specificity as core competence and predicts a positive relationship between asset specificity and the performance of internalization (Hypothesis 2) and a negative relationship between the specificity of the outsourced activity (core competence) and outsourcing performance (Hypothesis 3). The second stream sheds lights on the relational exchange notion and leads to the hypothesis that collaborative ties in the buyer-supplier relationship will positively moderate the relationship between asset specificity [non-redeployable investments] and outsourcing performance (Hypothesis 4). The third and final stream in relation to the strategy-related literature postulates that highly specific investments across buyers-suppliers dimensions in a given transactional relationship leads to collaborative ties which in turn enhances outsourcing performance (Hypothesis 5a, 5b).

As previously explained, hypothesis 2 falls out of the scope of this thesis as it deals with performance of internalisation as opposed to outsourcing performance that is the primary focus of this research. Similarly, although hypothesis 3 could be seen as one which leads to the same conclusion as the one drawn from hypothesis 1 over the effect of high asset specificity on outsourcing performance, this thesis has also chosen to discard it for a number of reasons. First, while the idea of making an analogy between high asset specificity and core competence could be described as important since it throws a strategic element into the equation, it actually shifts the entire unit of analysis for studying asset specificity from the actual transaction, which involves both buyers and suppliers, to the activity being outsourced and, consequently, to the buying firm. Yet, the criticality of the activity should not be considered in isolation since the supplier side might be in possession of an accumulated knowledge of the activity that reduces its specificity when transacted (Reve, 1990). Second, even though it has been convincingly affirmed that core competences are always of high asset specificity (Reve, 1990; Cox, 1996), this does not necessarily imply that an asset of high specificity is a core competence. Third, given the little guidance and uniformity in the literature concerning the definition of the

term (Kakabadse and Kakabadse, 2000; Quin and Hilmer, 1995), differentiating core competences from non-core ones has been widely regarded as the most challenging task (Venkatesan, 1992; McIvor *et al.*, 1997; Blumberg, 1998; Javidan, 1998; Lankford and Parsa, 1999). Indeed, as argued by Williamson (1999b), the core competence perspective suffers from rather vague and somewhat unclear definition, the essence of which relies primarily on success stories.

> *"There is no apparatus by which to advise firms on when and how to reconfigure their core competences, the argument relies on ex-post rationalization: show me a success story and I will show you a core competence"* (Williamson, 1999b, p. 1093).

The non-consideration of hypothesis 3 in addressing the research question set out in this thesis does not, however, mean the complete elimination of the core competence notion from our analysis as the level of core competence of the activity being transacted could have an effect on the degree of specificity in any given outsourcing relationship.

By focusing solely on boundaries choices rather than investigating the performance of such choices (as clearly shown from the mapping of the outsourcing literature), the majority of the empirical studies conducted have failed to address and test the above-mentioned hypotheses that were distilled from both the TCT and the strategy-related literature and which touch upon the relation between asset specificity and outsourcing performance. Commenting on this deficiency in the outsourcing literature, David and Han (2004, p. 53) conclude that:

> *"There was very little attention or support for TCT propositions regarding the relative performance of governance forms. While there is evidence that asset specificity leads to the choice of hierarchy over markets, we have no evidence (either way) on whether this choice is somehow 'efficient'. We found this lack of empirical attention*

troubling, given the central position that the comparative performance of governance forms occupies within the TCT"

Sharing the same view and commenting on the lack of the required empirical work, Williamson (1999b, p. 1091) contends that:

"Transaction cost economics is remiss in empirical respects: awaiting empirical testing... Transaction cost economics will benefit from more and better empirical work"

In an attempt to bridge this gap and respond to calls for more empirical research, this thesis seeks to examine the effects of the level of asset specificity on outsourcing performance using the twin lenses of both opportunism and resource-based considerations. Indeed, rather than trying to directly test predictions from one theory or the other, this research tries to explore the link between asset specificity and outsourcing performance using inferences distilled from both theories to better understand the significance of empirical outcomes.

"While competence research on learning and path dependency is especially good at uncovering biases, the lens of TCT affords comparative institutional perspective. Both are needed... I see the relation between competence and governance as both rival and complementary – more the latter than the former...Healthy tensions are posed between them. Both are needed in our efforts to understand complex economic phenomena as we build towards a science of organization" (Williamson, 1999b, p. 1105-1106).

3.5 Concluding remarks

Informed by the twin lenses of the transaction cost theory (TCT) and strategy-related literature (SRT), the various hypotheses which this thesis

tries to empirically test are summarised in the following table (see Table 3.1).

Table 3.1: The research model: predicted relationships between asset specificity and outsourcing performance

Theoretical perspective		AS definition		Predicted relationship		To be tested	
		core competence	*Non-redeployment investment*	*Performance of internalisation*	*Outsourcing performance*	*Yes*	*No*
TCT	Original version		X		H1a (-) H1b (-)	X	
	Extended version		X		H6 (+) (reciprocal investment)	X	
Strategy-related literature	Strategic competencies	X		H2 (+)			X
		X			H3 (-)		X
	Relational exchange		X		H4 (+) moderation collaboration	X	
			X		H5a (+) H5b (+)	X	

By studying the relation between asset specificity and outsourcing performance while exploring the interaction between value-based considerations and opportunism-related factors, this thesis shifts the debate from one which tries to demonstrate the superiority of one factor over another to one that investigates the weight brought by each of the two theoretical perspectives (the transaction cost theory and the strategy-related literature) in informing the relationship between asset specificity

and outsourcing performance. As such, the approach that this study takes deviates from the reductionist approach that only seeks to explain governance choices (the process-oriented literature) by also investigating empirically the post-outsourcing phase (the outcome-oriented literature). Such an integrated approach is motivated by both the existing empirical gap in the outcome-oriented literature (see section 2.3.3 in the previous chapter) and the desire to gain a fuller appreciation of the role of asset specificity in outsourcing, by accounting for the potential impact of reciprocal investments and by also assessing the moderating effect of collaborative ties.

Whereas the main objective of this research is to examine the relation between asset specificity and outsourcing performance while taking into account the impact of reciprocal investments and also assessing the moderating effect of collaborative ties, this thesis seeks to fulfill some additional sub-objectives.

By employing a disaggregated method in testing the hypotheses through the acknowledgement of the asset specificity's multi-dimensional characteristics and the consequent consideration of its various dimensions from the perspective of both buyers and suppliers, this research allows for: i) the investigation of the contributing effects of each dimension in its relationship with outsourcing performance; and ii) the testing of any potential impact that could arise from the interaction among the dimensions of buyers' and suppliers' asset specificity (reciprocal investments).

Besides, the importance of accounting for appropriate control variables in the context of outsourcing has been underlined by David and Han (2004) who make reference to the crucial role such variables may have in affecting both organizational governance choice and performance. Among these variables, Mol and Gedajlovic (2001) emphasise the importance of controlling for both firm size and industry type when trying to examine a causal relationship involving performance as a dependent variable, which

matches our case. Accordingly, the author has chosen to control for these two variables (firm size and industry type) for a number of reasons.

As far as firm size is concerned, it could be regarded as important since it is likely to have an effect on both the scale by which a firm can produce if it chooses to internalize, and the bargaining power that large firms could enjoy while dealing with outsourcing suppliers (Ono and Stango, 2005).

With respect to industry type, since the way in which the specific form of inter-firm cooperation is implemented varies among industries (see Ingham and Thompson, 1994), it is important to consider hypotheses distilled from both transaction cost theory and strategy-related literature while controlling for the industry in which the firm engaging in outsourcing operates. This argument is supported by Powell *et al.* (1996, p. 142) who, drawing on their research within the biotechnology industry, found that *"in a field of rapid technological development, the locus of innovation is found within the networks of inter-organisational relationships that sustain a fluid and evolving community"*. Moreover, while it has been argued that cooperative behaviours that take place within industries characterized by high uncertainty are unable to deal with opportunism as future expectations and predictability become difficult to be effectively achieved (Conner and Prahalad, 1996; Williamson, 1999b), Eisenhardt and Schoonhoven (1996, p. 147) found that *"strategic and social factors could dominate / outweigh transaction costs, especially in high-velocity industries and innovative processes"*.

Finally, the author also control for the type of activity being outsourced since this may play a role as far as asset specificity investments are concerned.

To the author's knowledge, this is the first study to empirically test the effect of asset specificity on outsourcing performance whilst controlling for industry type, firm size, and type of activity being outsourced. In this respect, the thesis is likely to make a significant and original contribution to

academic knowledge. To date only very few studies have touched upon this area (Poppo and Zenger, 1998; Artz, 1999; Mol and Gedajlovic, 2001; Wang, 2002; Rodriguez and Padilla, 2005) and their findings have been mixed. While Poppo and Zenger (1998) found that managers do actually become less satisfied with cost, quality and responsiveness of the activity being outsourced when high asset specificity is involved, Wang (2002) showed a positive relationship between asset specificity and outsourcing performance. Other studies (e.g. Mol and Gedajlovic, 2001; Rodriguez and Padilla, 2005) found no significant relationship between the degree of asset specificity and outsourcing performance. Apart from their conflicting results, all these studies have failed to control for industry type, the type of activity being outsourced and firm size simultaneously. Besides, they all relied on the measurement of one dimension of asset specificity even though there is a consensus in the literature that asset specificity is a multi-dimensional construct. Differentiating between buyers-suppliers' asset specificity dimensions while counting for their interacting effect is an additional important and original contribution which this thesis is set to make. Indeed, those who tried to differentiate between buyers and suppliers in their measurement of asset specificity, did so only in an aggregate fashion without distinguishing between the construct's various dimensions (see for example Artz, 1999).

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 Chapter overview

The previous two chapters drew attention to the lack of empirical research at the outcome-oriented level of the outsourcing literature and distilled a number of hypotheses on the relationship between asset specificity and outsourcing performance. This chapter discusses the methodology employed to conduct the empirical investigation through which the generated hypotheses are tested.

According to Sumner and Tribe (2004), for a well considered research design two important and intimately related issues should be addressed: (i) "the epistemological choice"; and (ii) "the methodological choice". While the former deals with the philosophical assumptions underpinning the nature of knowledge and the methodological foundation of the research (Montague, 1962 cited in Von Krogh *et al.*, 1994, p. 53; Nodoushani, 2000), the latter refers to the more practical side of it (Trochim, 2006). Along these lines of thinking, this chapter begins by exploring the nature of the research according to its purpose and context while also offering a critical discussion of its epistemological assumptions. After a statement on the research approach and on the strategy adopted, a discussion of the rationale underpinning the selection of the data collection method will be offered. The sampling strategy, the selection of the sampling method and frame will, thereafter, be presented. The chapter continues with an outline of the questionnaire structure and design, and a discussion of the issues of construct operationalisation and pilot-testing. The final section of the chapter will consider aspects of conducting the main survey.

4.2 Understanding the nature of the research

One way to gain an understanding of the nature of the research is to explore the position it occupies within the *"basic-applied research continuum"* (Saunders *et al.*, 2000; Easterby-Smith *et al.*, 2002) and to try to study its overall purpose using a three-fold classification that differentiates between three different groups of research, namely: (i) *exploratory*; (ii) *descriptive*; and (iii) *explanatory* research (Robson, 1993; Neuman, 2003).

As far as the basic and applied type of research are concerned, while the former is generally undertaken within academia and aims mainly at increasing knowledge and our understanding of business phenomena; the latter is primarily aimed at applying solutions in relation to specific organisational problems (Sekaran, 2000; Saunders *et al.*, 2000). Since this research, which is undertaken as a part of a doctoral program within a university setting, aims to make a contribution to academic knowledge by investigating the relationship between asset specificity and outsourcing performance, it is located more towards the *basic* end of the research spectrum. Nevertheless, given the fact that this research cannot be seen in isolation of its practical implications on outsourcing practice within organisations and since its outcomes could be of great value to managers, it also contains elements that push its purpose towards the other end of the (applied) research spectrum.

As noted earlier, in order to gain a deeper understanding of the nature of the research, one should try to understand its purpose using the three-fold classification that differentiates between exploratory, descriptive and explanatory types. *Exploratory research* answers the question of "what is happening" (Robson, 1993, p. 42) and could be a valuable means of finding out "what's going on" (Schutt, 2006, p. 13). It tends to look for patterns and hypotheses and helps the researcher gain an insight and become more familiar with a subject area through the adoption of mainly qualitative techniques for gathering data (Neuman, 2003; Schutt, 2006) via, for example,

a literature survey (Saunders *et al.*, 2000). *Descriptive research* focuses on providing an accurate picture of a particular event, situation or relationship (Robson, 1993; Neuman, 2003). It involves the adoption of mainly quantitative data-gathering techniques (Neuman, 2003). Finally, *explanatory research* tends to answer the "why" question by identifying the reason of something through, for example, the establishment of causal relationships between variables. It typically involves testing theoretical predictions or hypotheses using statistical techniques (Saunders *et al.*, 2000; Neuman, 2003; Schutt, 2006).

In line with Robson's (1993) argument, which suggests that the purpose of enquiry could change over time, the research undertaken during the course of this doctoral thesis began as exploratory and then moved towards an explanatory nature. Indeed, following an initial exploratory mapping of the outsourcing literature, a specific area that required a more rigorous investigation became the focus of the research. This led to the identification of two somewhat contradictory predictions over the causal relationship between asset specificity and outsourcing performance, which are to be subjected to empirical scrutiny in this study through hypothesis testing and statistical inference.

4.3 The epistemological framework

Epistemology, which originates from the Greek word "epistêmê", could be defined as a philosophical concept that is related to the nature and scope of knowledge (Trochim, 2006). It *"provides the philosophical underpinning which legitimises knowledge and the framework for a process that will produce, through a rigorous methodology, answers that can be believed to be valid, reliable and representative"* (Sumner and Tribe, 2004, p. 03). Although it tends to be overlooked (Saunders *et al.*, 2000) or simply reduced to the task of choosing between paradigms (Campbell, 2002, p. 479), discussing the epistemological underpinnings of a given research project has become

increasingly important and somewhat unavoidable (Bryman and Bell, 2003). Blaxter's *et al.*, (2001, p. 59) frame the issue well as follows:

> *"The question 'which method is best?' is not solely about whether, for example, to use interviews, questionnaires or observations. Underpinning these research tools are more general philosophical questions about how we understand social reality..."*

Since the choice of the research philosophy has a direct implication on the overall research approach employed and ultimately on the data collection method to be used (Collis and Hussey, 2003), it is important to begin with an exploration of the epistemological perspectives and philosophical stance of the research (Johnson and Duberley, 2000; Saunders *et al.*, 2000).

The research methodology literature makes reference to two diametrically opposed research philosophies. These being *the positivist-empiricist* and *the constructivist-phenomenological* (Jean Lee, 1992; Saunders *et al.*, 2000; Bryman and Bell, 2003; Fawcett and Hearn, 2004). While the former is likely to be based on logical reasoning, empirical evidence and used as means for establishing causal relationships between variables (Lincoln and Guba, 1985; Collis and Hussey, 2003), the latter tends to be useed in qualitative research concerned with interpreting human behaviour and employed as a means to understand the complexities of the social world (Remenyi *et al.*, 1998; Saunders *et al.*, 2000). These two research philosophies could be associated with Burell and Morgan's objectivism-subjectivism locus where at one end of the spectrum the researcher is independent of the object of investigation (objectivism) and where, at the other end, we find a more involved researcher trying to understand the rich and complex world he or she is part of (Burell and Morgan, 1979). With reference to the nature of reality, the two above mentioned philosophical stances, which occupy two extreme poles in the research paradigm debate, could be linked to the *representationalism-*

nominalism ontological dimension (Easterby-Smith *et al.*, 2002). While *representationalists* contend that truth could be determined by means of prediction-testing, which matches the positivists' position; *nominalists* assume that truth could be better explored by referring to *the labels and names we attach to experiences and events* (Easterby-Smith *et al.*, 2002, p. 32) matching, hence, the phenomenologists' end.

Viewed within its dominant *basic explanatory* nature as highlighted in the previous section (although it contains elements of both applied and exploratory research purposes) and given its attempt to investigate the causal relationship between asset specificity and outsourcing performance by means of prediction-testing, the philosophical orientation underpinning the author's research takes, overall, a *positivist* stance and leans towards a rather *representationalist* ontological position.

Nevertheless, as noted by Saunders *et al.*, (2000, p. 86), in practice *"research rarely falls neatly into the positivist and phenomenological camps"*. This is echoed by Hammersley (1996) who contends that research cannot always be seen as strictly *qualitative* or *quantitative* or also as purely *subjective* or *objective* (Trochim, 2006). As such, although this research takes an overall positivist stance, it also contains phenomological elements that allow for an explanation of the phenomena under investigation (through the author's interpretation of the gathered data) hence leaning towards what Molteberg and Bergstrom's (2000) describe as middle ground pragmatism. The latter reflects the feasibility to employ different methodological approaches that are judged to suit particular research problems (Tashakkori and Teddlie, 1998).

Finally, it should be noted that even though the above discussion on the epistemological stance of this study seems to be solely guided and informed by its suitability to the nature of the research and the type of question to be addressed, it could also be influenced by the author's *epistemological commitment* that was at the origin of the development of the research

question in the first place (the underlying belief that there exist data patterns or empirical regularities on the relationship examined that could be uncovered). This idea is clearly captured in Johnson and Duberley's (2000, p. 1) statement:

> *"How we come to ask particular questions, how we assess the relevance and value of different research methodologies so that we can investigate those questions..., all express and vary according to our underlying epistemological commitments".*

The statement resonates with Wilden's (1972) suggestion that "*there are always causes that cause causes to cause causes*" (Wilden, 1972 cited in Jean Lee, 1992, p. 90), which, in turn, mirrors Moldoveanu and Baum's (2002) emphasis on the need to produce researchers who are informed about their epistemological commitments and consequently on the importance *"to consider not only what beliefs researchers hold but also how researchers believe their beliefs..."* (p. 744).

4.4 The methodological framework

The notion of methodological framework relates to the way methods are combined in order to generate appropriate research data that could ultimately form the response to the research question (Collis and Hussey, 2003; Creswell, 1994). Consequently, it represents the "*operationalisation of the research question*" (Sumner and Tribe, 2004, p.11) which, in turn, requires reaching a decision on both the research approach and the research strategy to be adopted.

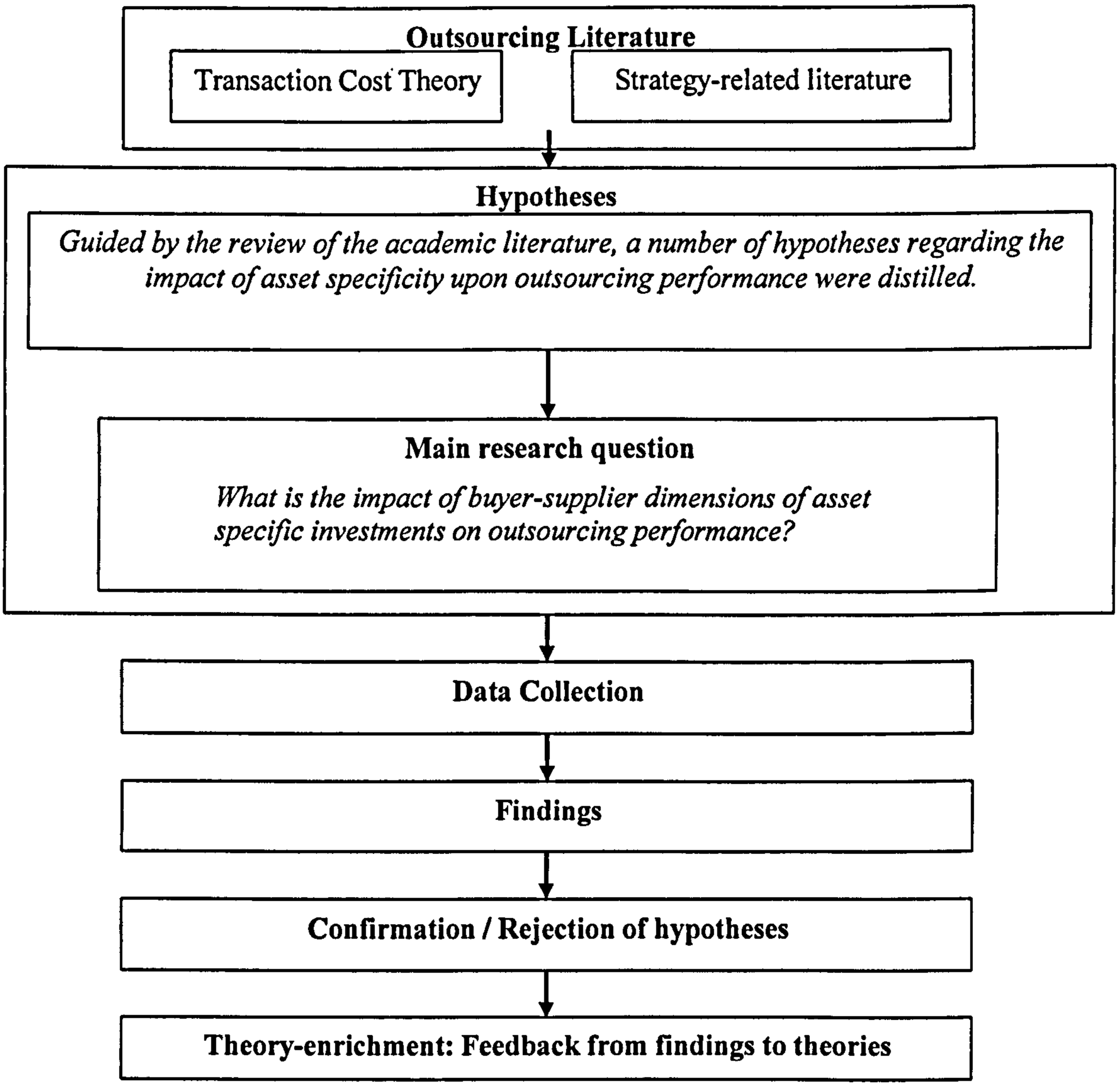
4.4.1 Research approach

Research approaches can be broadly classified into two categories: *deductive* and *inductive* (Saunders *et al.*, 2000; Neuman, 2003). This classification

provides us with a clear schema for the examination of the relationship between theory and research (Bryman and Bell, 2003). Indeed, while the deductive approach, which could be associated with a theory-testing process (Hyde, 2000), moves from a general theory to a specific case (Kovacs and Spens, 2005) indicating a *"top-down"* progressive sequence (Trochim, 2006), the inductive approach is characterized by its theory-building process (Hyde, 2000; Saunders *et al.*, 2000) that involves drawing *"generalisable inferences out of observations"* (Bryman and Bell, 2003, p. 12).

Since this study moves from the articulation of hypotheses to empirical testing, it is the deductive method of enquiry which best describes the approach pursued in this research project. In fact, focusing on the transaction cost and strategy-related literature in relation to outsourcing; a number of hypotheses on the relationship between asset specificity and outsourcing performance were firstly distilled and then tested using data from companies. As pointed out by Neuman (2003, p. 51), the deductive approach can be regarded as a move from *"a logical relationship among concepts"* toward *"concrete empirical evidence"* (see Figure 4.1)

Figure 4.1: The process: Dominant deductive research approach



Source: Adapted from Bryman and Bell (2003, p. 11) and applied to the author's research.

Nevertheless, it is worth noting that although it might be useful to classify research approaches into deductive and inductive categories, this distinction has been criticised for its inability to reflect the actual approaches adopted by researchers in practice (see Hyde, 2000). Sharing similar views, Blaikie (1993) denied the existence of pure deductive or inductive forms of research and, consequently, proposed a third *"abductive approach"* that contains some elements of both approaches, hence reflecting a more eclectic form of

research that recognises *"the intertwined nature of different activities in the research process"* (Dubois and Gadde, 2002, p. 555)[1]. Such an eclectic view, therefore, highlights the importance of regarding research approach as a phenomenon in motion rather than as a static well-defined process. As stated by Dubois and Gadde (2002, p. 555) *"a standardised conceptualisation of the research process as consisting of a number of planned subsequent phases does not reflect the potential uses and advantages of ... research"*. The same view seems to be shared by Saunders *et al.* (2000, p. 90) who recognise that any *"rigid divisions between the two approaches [deductive and inductive] to research... would be misleading"*.

4.4.2 Research strategy and data collection method

Research strategy could be described as a general plan that, with due consideration to the researcher's resource constraints, clarifies how the research question is to be addressed, how the research objectives are to be met, and how required data are to be collected (Saunders *et al.*, 2000). The research methodology literature makes reference to a variety of research strategies including experiment, survey, case study, grounded theory, ethnography and action research (Robson, 1993; Saunders *et al.*, 2000; Baker *et al.*, 2002; Bryman and Bell, 2003). According to Easterby-Smith *et al.* (2002), most research strategies could be associated with different research approaches. Indeed, while the survey strategy is often related to the positivistist-deductive approach, strategies such as ethnography or grounded theory are described to fit better with a constructivist-inductive research

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[1] Academics who share the same view might argue that while this research adopts dominantly a *positivistic hypothetical-deductive method* (as it is referred to by Parry 2003, p. 258), it also employs a kind of *abductive approach* in its first stage during which two different theories were used for explaining the relationship between asset specificity and outsourcing performance, leading to the derivation of a number of hypotheses that are later tested using a deductive research approach. In addition, since the results of the hypothesis-testing are to be fed back into the theories that prompted the whole process, this research, in its final stages, takes a rather *inductive approach* that contributes to the enrichment and development of the theories involved.

approach (Saunders *et al.*, 2000; Easterby-Smith *et al.*, 2002). Nevertheless, although these connections between research approaches and research strategies might help researchers selecting the right strategy in their research journey, these associations alone are regarded to be over-simplistic since the final decision should mainly be guided by the research question(s) and objectives (Saunders *et al.*, 2000).

The main purpose of this research is to test the causal relationship between asset specificity and outsourcing performance and to try to identify if the nature of the relationship is influenced by the industry type, firm size, and the kind of activity being outsourced. This requires gathering information from a large number of firms, with different sizes, operating in different industries and outsourcing different types of activities. As such, given the purpose of the research, the survey strategy was selected as the most appropriate research method among competing alternatives. First, the chosen method provides access to a wide population sample in a highly economic way (Saunders *et al.*, 2000; Fowler, 2002). Second, it is a common approach for carrying business and management research and it is usually associated with the deductive approach that is dominantly employed in this research (Remenyi *et al.*, 1998; Saunders *et al.*, 2000; Neuman, 2003). Third, it allows for the collection of quantitative data that allows for statistical analysis to be carried out (Frankel *et al.*, 2005). This enables the author to fulfil the main objective of this study which essentially involves empirical prediction-testing.

Within the survey category, most of the research methodology literature distinguishes between three data collection techniques, namely: i) structured observation; ii) structured interviews; and iii) self-administered questionnaires (Saunders *et al.*, 2000; Easterby-Smith *et al.*, 2002; De Vaus, 2002).

Structured observation is often associated with organisation and methods (O&M) research (Saunders *et al.*, 2000) and is most frequently used as part of experiments (Easterby-Smith *et al.*, 2002).

Structured interviews involve asking standardised questions to all interviewees either face-to-face or through telephone (Collis and Hussey, 2003), allowing the researcher to make sure that the respondent is the particular person to whom they wish to administer the survey (Hair *et al.*, 2003). It should be noted though that this data collection method requires skills similar to those related to in-depth and semi-structured interviews (Saunders *et al.*, 2000).

As for self-administered questionnaires, they usually provide access to wider and more dispersed samples while being accomplished with minimal staff and facilities. They allow respondents time to think about their answers (Fowler, 2002), provide greater anonymity (Blumberg, *et al.*, 2005) and, hence, are less likely to result in respondents being tempted to provide 'pleasant' answers (Dillman, 2000). For these reasons, and given the author's resource constraints (eg. non-availability of qualified interviewers to assist), the self-administered questionnaire was selected as the most appropriate data collection method (within the survey category) to be employed. Self-administered questionnaires could be delivered and returned electronically through email (online questionnaire), by mail post or could also be physically handed to and collected from each respondent (Saunders *et al.*, 2000). In this research the postal method was chosen for a number of reasons. First, online questionnaires could be technically-demanding and could face the threat of being regarded as junk emails ('spam'). Second, personal email addresses can be difficult to obtain, which could lead to the use of the companies' general enquiry email and hence reducing the questionnaires' chance of reaching the intended recipient. Third, given the large number of companies to be targeted, the option of handing the questionnaires physically was considered both unpractical and time consuming.

However, although considered as the most appropriate data collection method for this research, the self-administered questionnaire method suffers from a number of drawbacks which researchers must be aware of. Indeed, this method has been primarily criticised for its low response rate generation which, in turn, could be responsible for introducing non-response bias (Bryman and Bell, 2003; Neuman, 2003; Collis and Hussey, 2003; Langdridge, 2004; Blumberg *et al.*, 2005). In addition, the self-administered questionnaire method usually raises the risk of missing data occurrence as questionnaires are returned partially uncompleted (Bryman and Bell, 2003). Moreover, while this data collection method limits the type of questions to be employed (for example open questions should be avoided), it also prevents the researcher for further probing, restricting the extent of topic coverage (Hoinville *et al.*, 1978; Bryman and Bell, 2003; Neuman, 2003). Finally, an additional limitation of the self-administered questionnaire is the lack of the researcher's control over the conditions under which questionnaires are completed (Hoinville *et al.*, 1978; Neuman, 2003), an aspect which could potentially affect the reliability of the results.

Given the above-mentioned limitations, the author paid particular attention to the sampling strategy and to the questionnaire structure, design and content so as to reduce bias and enhance the reliability and validity of the research. In so doing, attempts were also made to increase the potential response rate and reduce the risk of missing data.

4.5 Sampling strategy

A sample consists of *"a subset or a segment of population that is selected for investigation"* (Bryman and Bell, 2003, p. 93). The extent to which the characteristics of a sample represent those of the population from which the sample is drawn dictates the ability to generalise from the sample to the population (May, 2001). Such generalisation process, which is typically related

to the positivistic hypothetical-deductive tradition, calls for a *probability sampling approach* which is, in turn, commonly associated with survey-based research (Dillman, 2000; De Vaus, 2002; Hair *et al.,* 2003). While probability sampling does not completely eliminate sampling error, it allows the researcher to employ tests of statistical significance that allow generalised inferences to be made (Bryman and Bell, 2003). However, this would require an adequate definition of the population, an appropriate sample frame, and a properly selected sample (De Vaus, 2002).

4.5.1 Population

In a survey-based research, population consists *"of all of the units (individuals, households, organisations) to which one desires to generalise survey results"* (Dillman, 2000, p. 196). It refers to *"the universe of units from which the sample is to be selected"* (Bryman and Bell, 2003, p. 93). In this research, the population consists of all companies operating in the UK and belong to one of the following service-related industries: (i) Banking and Finance industry, (ii) hotel industry, (iii) IT industry, and (iv) telecommunication industry. There are three main reasons for selecting these industries as the population of this study. First, all four industries are service-related, thus enabling the researcher to draw inferences about outsourcing among companies operating in this kind of setting as opposed to those operating in the manufacturing sector (traditionally regarded as being the sector most involved in outsourcing, see for example Wang, 2002). Second, although companies operating in the service-related industries were initially regarded as outsourcing providers, recent statistics have shown their increasing engagement in outsourcing (see, for example, Embleton and Wright, 1998, p. 97). Third, the selection of these four different industries would enable the researcher to control for industry type within an overall service-related context in a single study.

Finally, as opposed to past studies which limited their samples to single industries (e.g. Zaheer & venkatraman, 1995; Mohr and Spekman, 1994; Goodman et al., 1995) we aimed to improve external validity of this research

by obtaining data from a broader population of firms operating in four different industries. Collectively these industries are typically service-related, hence, enabling the authors to complement other studies that focused on manufacturing-related firms (e.g. Artz, 1999).

Therefore, surveying companies operating in industries such as banking and finance, IT, telecommunication, and hospitality provides an original context from which to examine the effect of asset specificity on outsourcing performance while accounting for industry effect.

4.5.2 Sample frame

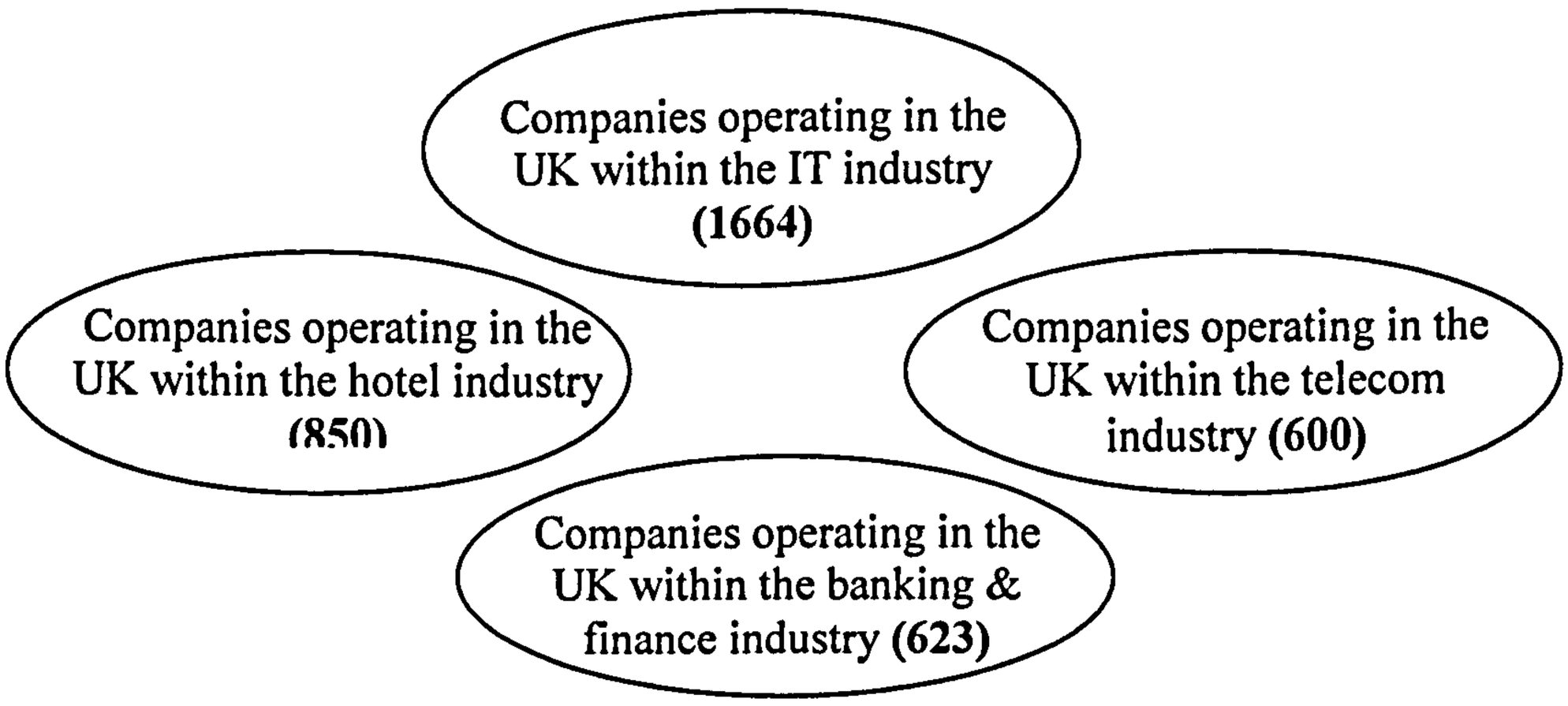
A representative sampling technique requires the consideration of a *sampling frame* which entails listing all the cases in the population from which the sample is to be selected (Saunders *et al.,* 2000; Bryman and Bell, 2003). In defining the sample frame, this study makes use of the Financial Analysis Made Easy (F.A.M.E) database. This database provides comprehensive information on 3.1 million companies operating across all industries in the UK and Ireland without imposing any restriction to particular type of companies. Two steps were taken in building of the sampling frame. First, companies which are operating in the UK (except those located in Channel Islands and in the Republic of Ireland) and whose industry of belonging corresponded to the UK Standard Industrial Classification (UK SIC 2003) Primary Codes of the four targeted industries (banking and finance, IT, hotel, and telecommunication) were selected (see Table 4.1).

Table 4.1: Industry coverage of the sampling frame

Industry	UK SIC (2003) codes	Location
IT	722	The only locations that were excluded are Republic of Ireland and the Channel Islands (Guernsey, Isle of white, and Jersey).
Telecommunication	642	
Banking and Finance	651	
Hotel	551	

In the second step, a further revision and refinement of the obtained list of companies was carried out so as to double check on the accuracy of the information (including addresses and contact details) and to eliminate any existing duplication. While an important number of duplicated addresses were found (as some companies operating under the same registered address had different SBU's which were separately mentioned in the FAME database) and had to be eliminated, a random double-checking carried out by the author on 50 companies from each industry, confirmed the accuracy of the information as presented by FAME. Nevertheless, it is worth noting that names of directors were very difficult to check as these were very rarely indicated in the companies' websites. Those double-checked against the information presented in the website were, in all cases, accurate. Finally, a total of 3,717 companies were selected to make up the sample frame corresponding to the UK SIC Primary Codes of the four above-mentioned industries (see Figure 4.2).

Figure 4.2: Composition of the sample frame



The sample frame consists of 3,717 companies operating in the UK: 1664 companies operating within the IT industry; 600 within the telecommunication industry; 850 within the hotel industry; and 623 operating with the banking and finance industry. There is no overlapping company between subgroups of the sample frame.

4.5.3 Sample size

Sample size can play a critical role in affecting the statistical significance, the reliability and the validity of the results. Indeed, while a small sample size may mean limited statistical power for the tests and may result in hindering generalisability (Hair *et al.*, 1998), a large sample size may require considerable resources and may result in making statistical tests overly sensitive as weak relationships could reach a significant level when in fact they may not be significant (Sekaran, 2000). Reaching a decision about the required sample size is a process that should take account of a number of considerations. One important criterion that has been frequently mentioned in the research method literature is the need for precision and the consequent sample error to be tolerated (Dillman, 2000; Hair *et al.*, 2003).

One of the methods that factors in the extent of the sampling error to be tolerated and which could be used in estimating the minimum sample size is the formula that has been suggested by Saunders *et al.* (2000, p. 463):

$$n = p\% \times q\% \times \left[\frac{z}{e\%}\right]^2$$

Where n is the minimum sample size

p% is the proportion belonging to the specified category

q% is the proportion not belonging to the specified category

z is the z value corresponding to the level of confidence required

e% is the margin of error required

Since it is difficult at this stage of the research to estimate the proportion of responses expected to have a particular attribute and following De Vaus's (2002) recommendation of 'playing safe' and considering the worst scenario, 50% will be allocated to both p% and q% (as this will give us the greatest diversity in the sample). Accordingly, assuming a 95% level of confidence (associated z value being 1.96) and a 9% sampling error, the minimum computed sample size will be $[50 \times 50 \times (1.96/9)^2] = 118$.

However, while the importance of the sampling error criterion should not be underestimated, Fowler (2002) warns against its isolated consideration and calls for taking into account other factors. This point is echoed by Bryman and Bell (2003, p. 101) who stress that *"since sampling error will be only one component of any error entailed in an estimate, the notion of using a desired level of precision as a factor in a decision about sample size is not realistic".* Other factors that could dictate the choice of sample size include: (i) time and cost constraints; (ii) the extent to which there is variability or diversity in population (taken into account by the above formula); (iii) the type of analyses to be undertaken and the number of different variables examined simultaneously in data analysis, and (iv) the size of the total population from

which the sample is being drawn (Saunders *et al.*, 2000; Sekaran, 2000; De Vaus, 2002; Bryman and Bell, 2003; Neuman, 2003). As such, the decision over the sample size to be reached becomes *"a matter more of judgement than of calculation"* (Hoinville *et al.*, 1978, p. 61). In reaching a decision about the optimal sample size, Sekran (2000, p. 296) suggest the following rule of thumb:

> *"1. Sample size larger than 30 and less than 500 are appropriate for most research. 2. Where samples are to be broken into sub-samples (males/females, juniors/seniors, etc), a minimum sample size of 30 for each category is necessary. 3. In multivariate research (including multiple regression analyses), the sample size should be several times (preferably 10 times or more) as large as the number of variables in the study".*

As far as this study is concerned, and given the resource constraints, the number of variables to be examined (13 variables in total[2]) and the number of industries to be targeted (4 different service-related industries), a final sample size of 130 could be regarded as adequate (13 x 10 = 130). Nevertheless, in order to account for the likely degree of non-response (that is becoming increasingly common in self-administered questionnaires, see Cycyota and Harrison, 2006), it is necessary to draw an initial sample that is larger than the adjusted minimum sample size as well as to employ techniques for enhancing the response rate (Saunders *et al.*, 2000; De Vaus, 2002). Therefore, if we consider an expected 6% response rate return[3] (see for example, Collis and Hussey, 2003, p. 175, who argue that response rates of less than 10% are not uncommon), the number of questionnaires to be sent would be around 2166 = [(130 * 100) / 6].

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[2] 6 buyer asset specificity dimensions + 4 supplier asset specificity dimensions + 2 outsourcing performance variables + 1 collaborative ties

[3] A number of recent studies, including Koch and McGrath (1996) and Lepak et al. (2003), have reported a response rate as low as 6.5 % .

4.5.4 Sampling method

As can be seen from Table 4.2, there are four main types of probability sampling methods namely i) simple random sampling; ii) systematic sampling; iii) stratified sampling; and iv) multistage cluster sampling. Among the four types of probability sampling, for this study the author chose to employ the stratified sampling method since it is more likely to be representative and can produce a more accurate sample than what would be achieved by simple random sampling (Churchill, 1999).

Table 4.2: Types of probability sampling

Type of sampling	Method
Simple Random Sampling	Creation of sampling frame for all cases and the subsequent selection of cases using a purely random process.
Systematic Sampling	Creation of a sampling frame, calculation of the sampling interval, choice of random starting place, selection of cases for every interval
Stratified Sampling	Creation of a sampling frame for each of several categories of cases, drawing of a random sample from each category, and the subsequent combination of the several samples.
Multistage Cluster Sampling	Creation of a sampling frame for larger cluster units, drawing of a random sample of the cluster units, creation of sampling frame for cases within each selected cluster unit, and the subsequent drawing of a random sample of cases.

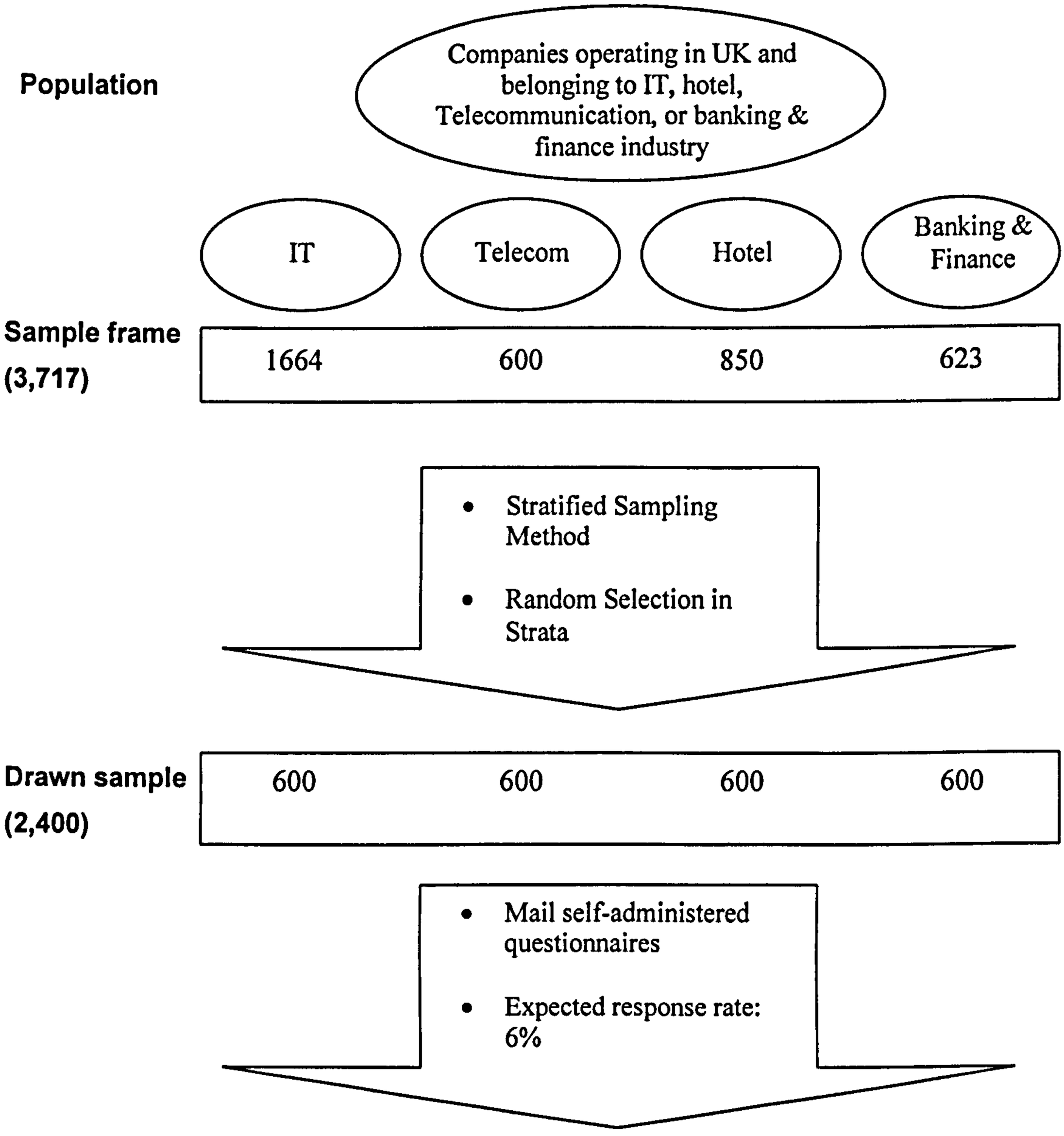
Source: Adapted from De Vaus (2002), and Neuman (2003).

In addition, since significant strata in our sampling frame can easily be distinguished (the four different industries), the adoption of the stratified

sampling method could be judged as the most appropriate (Saunders *et al.*, 2000).

Since the sampling frame in relation to the telecommunication industry stratum consists of only 600 companies, in an attempt to obtain a total sample size that marginally exceeds the required minimum sample (to be on the safe side), a random sample of 600 companies will be drawn from each stratum adding up to a total sample of 2400 companies to be targeted (600 companies from each industry) (see Figure 4.3).

Figure 4.3: Summary of the sampling process



4.5.5 Unit of analysis

"*The unit of analysis is the unit about which we obtain information: it is the unit whose characteristics we describe*" (De Vaus, 2002, p. 30). Since the main

objective of this study is to identify the impact of buyers-suppliers asset specific, non-redeployable, investments upon outsourcing performance, the unit of analysis in this study is the individual organisation that was engaging in outsourcing project at the time of the mail survey and which responded to the mail questionnaire. A key informant from each organisation (buyer) provided information on his (her) organisation's asset specific non-redeployment investments, commented on the performance of the outsourcing project undertaken by his (her) organisation, and offered the organisation's perception of asset specific investments made by its supplier.

4.6 Questionnaire structure, design and content

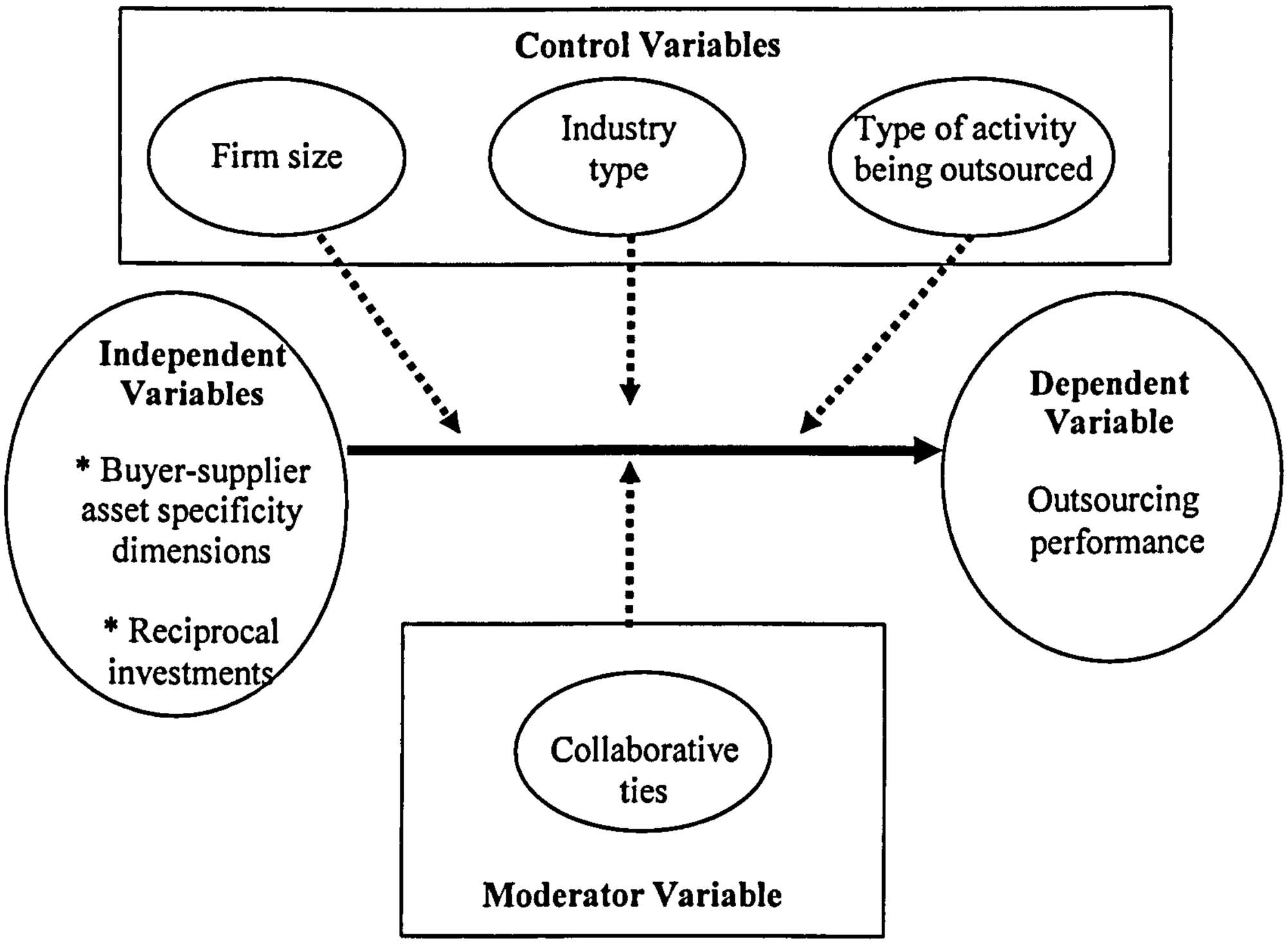
Given the limitations of the mail questionnaire method (as discussed in section 4.4.2), considerable efforts were made in order to enhance the reliability and validity of results by attempting to increase response rate while reducing potential errors and biases. Following a brief reminder of the research aim and objectives, this section discusses the measurement development process adopted and outlines the content of the questionnaire and the different items through which the research variables will be operationalised. Various methods of reliability and validity assessments are, thereafter, discussed. Issues related to the structure, design, and pilot-testing of the questionnaire will also be expanded upon.

4.6.1 Research aim and objectives

This research investigates the impact of asset specificity on outsourcing performance in the context of IT, banking and finance, hotel, and telecommunications industries in the UK. Specifically, it aims to empirically test the number of hypotheses that were distilled in the previous chapter (see section 3.5 of the previous chapter) by trying to explore the impact of buyers-supplier asset specificity dimensions upon outsourcing performance while controlling for firm size, industry type and type of activity being outsourced. It also investigates the moderating effect of collaborative ties on the relationship

in question while assessing the impact of reciprocal specific investments on outsourcing performance. As such, this research delineates four types of variables, namely: (i) independent variables; (ii) dependent variable; (iii) control variables; and (iv) moderator variable (see Figure 4.4).

Figure 4.4: Composition of research variables

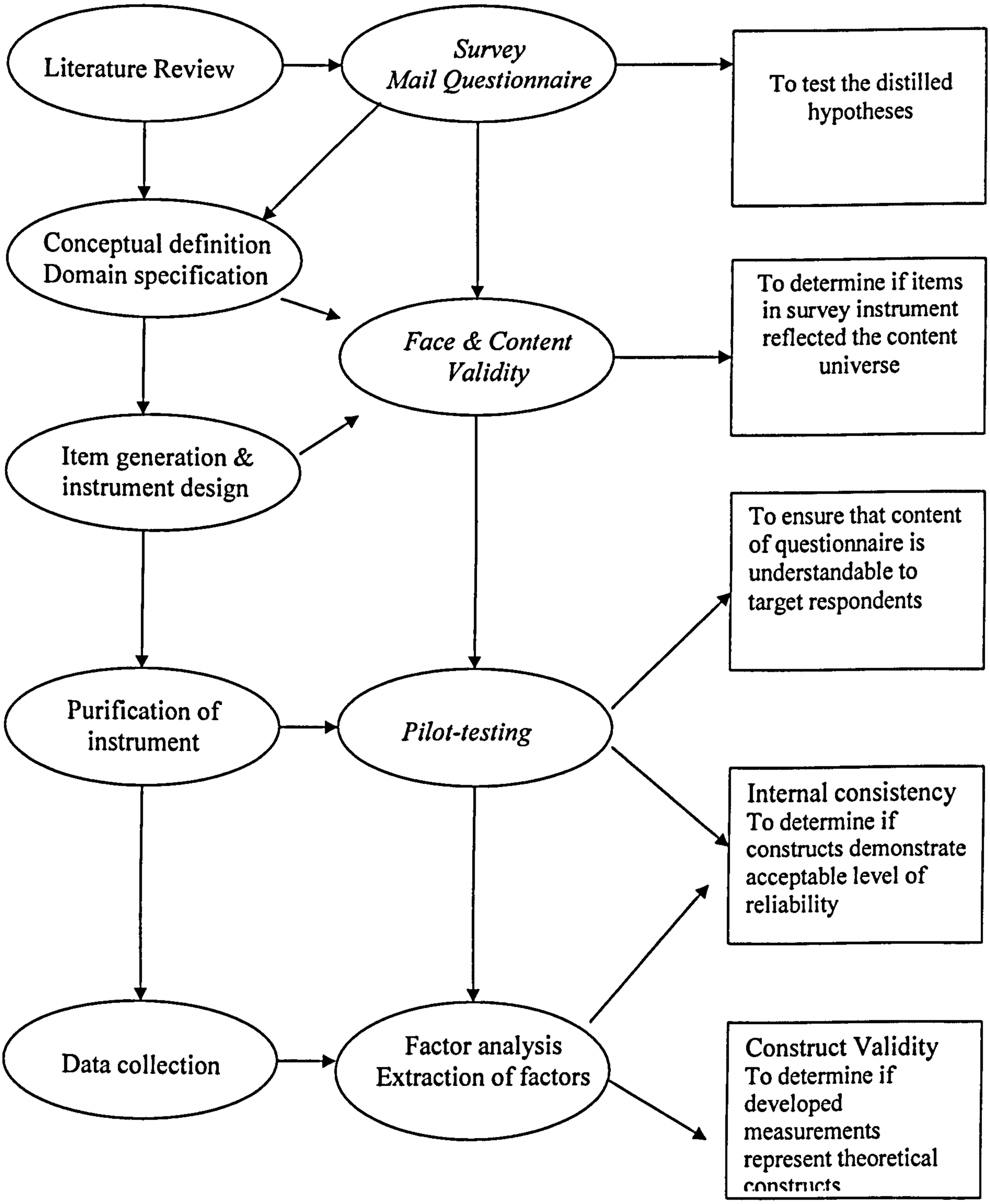


4.6.2 Scale development and research instrument generation

Since the publication of Churchill's (1979) work, there has been an increase in the number of studies which showed greater interest in improving the quality of measurement (see reviews made by Peter, 1979, 1981; Peterson, 1994). Indeed, in his seminal work, in which he calls for more attention to be paid to measure development and variable operationalisation, Churchill (1979) places particular emphasis on the importance of the rigour with which the rules are specified in the process of operationalisation. He notes that *"progress in the*

development of science certainly will depend on the measures [researchers] *develop to estimate the variables of interest to them"* (Churchill, 1979, p. 73). Churchill also proposes a paradigm for measurement development, consisting mainly of four phases aiming at satisfying validity and reliability factors through successive development and testing. These phases include: (i) construct domain specification; (ii) items generation; (iii) measure purification and instrument refinement; and (iv) data collection. The approach adopted by this study in developing and validating the instrument of the research followed similar patterns. The overall picture of the measurement developing process together with the purpose of undertaking each stage is shown in Figure 4.5.

Figure 4.5: Summary of the development and validation process of the research instrument



Source: Adapted from Dwivedi *et al.* (2006, p. 703).

Working within Churchill's (1979) influential tradition and in line with Templeton's *et al.*, (2002) methodology, this research goes a step further by adopting a more rigorous approach that also takes Malhotra and Grover's (1998) Ideal Survey Attributes (ISA) (see Table 4.3) as additional criteria against which the quality of instrument development is to be assessed.

Table 4.3: Malhotra and Grover's (1998) Ideal Survey Attributes (ISA)

Types of error	Ideal survey attributes (ISAs)
General	**ISA-1** Is the unit of analysis clearly defined for the study? **ISA-2** Does the instrumentation consistently reflect that unit of analysis? **ISA-3** Is the respondent(s) chosen appropriate for the research question? **ISA-4** Is any form of triangulation used to cross validate results?
Measurement error	**ISA-5** Are multi-item variables used? **ISA-6** Is the content validity assessed? **ISA-7** Is field-based pretesting of measures performed? **ISA-8** Is reliability assessed? **ISA-9** Is construct validity assessed? **ISA-10** Is pilot data used for purifying measures or are existing validated measures adapted? **ISA-11** Are confirmatory methods used?
Sampling error	**ISA-12** Is the sample frame defined and justified? **ISA-13** Is random sampling used from the sample frame? **ISA-14** Is the response rate over 20 per cent? **ISA-15** Is non-response bias estimated?
Internal validity error	**ISA-16** Are attempts made to establish internal validity of the findings?
Statistical conclusion error	**ISA-17** Is there sufficient statistical power to reduce statistical conclusion error?

Source: Malhotra and Grover (1998, p. 418-420)

As clearly shown in section 4.5 (sampling strategy), the respondents chosen for this study addressed the ***ISA-3*** (appropriate sample respondents), ***ISA-12*** (sampling frame was justified), and ***ISA-13*** (random sample extracted from each stratum of the sampling frame).

The next sections will highlight the other ISA attributes that were satisfied at each stage of the instrument development process.

4.6.2.1 Domain specification and conceptual definition of main constructs

In this research, two main constructs occupy the central focus of the investigation, namely: (i) asset specificity; and (ii) outsourcing performance. Since according to Churchill (1979, p. 67), *"it is imperative... that researchers consult the literature when conceptualising constructs and specifying domains"*, the conceptual definition of both asset specificity and outsourcing performance was determined by conducting an extensive review of related literature. The selected literature included mainly academic articles that even merely touched upon asset specificity or outsourcing performance across several disciplines. Bibliographies of the initial selected articles were reviewed to further explore important concepts. Table 2.9 and 2.14 (in chapter 2) present a list of authors and their works, along with their specific contribution in articulating respectively the asset specificity and the outsourcing performance constructs.

As far as the asset specificity construct is concerned, a review of the various definitions as presented in the selected articles revealed the absence of a uniform definition and hardly any systematic attempt to organise the array of various definitions in a blended framework that would alleviate the ambiguities over the already complex meaning of asset specificity (see Appendix 2.1). Consequently, the author tried to categorise the various definitions according to the distinguishing features which they tried to emphasise (see Table 2.8 in

chapter 2). This process resulted in the articulation of a number of key characteristics, these being: (i) the extent of resources devoted by *both* buyer and supplier for the support of the transaction; (ii) degree of transferability / redeployment of these resources; (iii) the difference in value between the resources investment current use and its future best use; (iv) the importance of the identity of the two parties; and (v) the importance of the continuance of the relationship and the consequent, degree of lock-in and dependence.

The review of the literature also revealed six dimensions of asset specificity to which the author, in line with Zaheer and Venkatraman (1995), added another dimension (procedural asset specificity) which is primarily aimed at capturing the physical asset specificity dimension within the service industry: (human asset specificity, physical asset specificity, site specificity, dedicated asset specificity, temporal asset specificity, brand capital, and procedural asset specificity).

At this point it should be noted that for the purpose of defining asset specificity, it is important to distinguish between what the concept is and what it is not. The research on asset specificity could be divided into (1) works that define asset specificity based on Williamson's (1979) original work and (2) works that redefine asset specificity in terms of core competence. For the reasons that were discussed in section 3.4 (chapter 3), this research falls within the first category which considers the actual transactional outsourcing relationship as the unit of analysis and not the activity being outsourced.

As for *outsourcing performance*, a review of studies (see Table 2.14) revealed the presence of two broad dimensions that characterise the definitions of outsourcing performance. These include the quantitative accounting and qualitative strategic characteristics. While the former generally concerns cost savings and financial performance, the latter involves strategic benefits such as the quality of service being received.

As such, for the purpose of this research, outsourcing performance is defined as the degree to which the outsourcing project objectives, as set by the outsourcer, have been met and the extent to which the latter has been satisfied with both the qualitative and quantitative benefits obtained from outsourcing a given activity or function.

The above-mentioned lengthy process of conceptualisation clearly addressed the ***ISA-1*** quality attribute by specifying the unit of analysis and clarifying the definitions and key characteristics of key variables under investigation (asset specificity and outsourcing performance).

4.6.2.2 Item generation

In an attempt to generate the appropriate measurement items in relation to the key variables, an original and extensive measure comparison effort that tries to review, report and categorise past papers according to their asset specificity operationalisation methods was undertaken (see Table 2.9). This was followed by the identification of various items that were employed in measuring each dimension of asset specificity (see section 2.4.2). Both procedures revealed a number of deficiencies in relation to the multi-dimensional coverage of the concept, which this research sought to address through the use of measures that represent as much of the construct 'space' or domain as possible while trying to simultaneously satisfy key methodological criteria. With regard to outsourcing performance, a review synthesising and integrating various outsourcing performance measurements, as employed in past studies, was also carried out (see section 2.5).

In the light of this measure-comparison procedure (as discussed above), which clearly fulfilled both ***ISA-2*** and ***ISA-5*** quality attributes, items aimed at measuring both asset specificity and outsourcing performance have been generated. Most of the questions were either directly derived or fairly faithfully adapted from previous academic studies. However, on few occasions, in the

absence of studies measuring a particular dimension, new items were developed by the author drawing from theoretical insights. All the measurement scales used in this research were rated on a seven-point Likert scale, from 1 = strongly disagree to 7 = strongly agree.

Tables 4.4 through to 4.11 summarise the operationalisation of key research variables by presenting the questionnaire items and indicating the source from which they were derived.

Dependent variable: Outsourcing performance

As discussed in chapter two (see section 2.5), when measuring performance of the relationship (including outsourcing performance), a number of studies have made use of quantitative accounting measurements (such as sales growth rates, market shares, and return on investment) which are unlikely to capture the real dimension of the outsourcing performance construct due to their failure to cover the outsourcing strategic dimensions. Other studies that have attempted to achieve a better articulation of the outsourcing performance construct have made use of more qualitative measures. In so doing, they focused either on the degree of realisation of outsourcing benefits, or on the overall satisfaction with respect to outsourcing performance (with particular emphasis being placed on governance efficiency). In order to capture both dimensions, this study treats outsourcing performance as a composite construct based on the realisation of expected benefits, and on buyers' overall satisfaction of the performance of the relationship (see Table 4.4).

Buyers' overall satisfaction with their outsourcing project was measured by four items mainly adapted from the literature and intending to mainly capture buyers' satisfaction with the quality of received service (Goodman *et al.*, 1995; Lacity *et al.*, 1996), and with their suppliers' responsiveness to problems and queries (Poppo and Zenger, 2002).

Buyers' realisation of outsourcing objectives was measured by seven items designed to capture the extent to which the expected outsourcing benefits have been realised. These include access to skilled personnel, economies of scale, higher quality, greater focus on core activities, and reduction in the risk of technological obsolescence (Grover *et al.*, 1996; Lee and Kim, 1999).

Table 4.4: Operationalisation of the outsourcing performance construct

Dimension	Items	Sources (from which items were adapted)
Buyers' overall satisfaction	1. Your company is very satisfied with the overall benefits obtained from outsourcing this activity.	The author
	2. Your company is very satisfied with the quality of the service received in terms of consistency, timeliness and accuracy.	Goodman *et al.* (1995, p. 1323)
	3. Your company is very satisfied with this supplier's responsiveness to problems or queries.	Poppo and Zenger (2002, p. 715)
	4. The service level received from this supplier has exceeded your company's expectations.	Lacity *et al.* (1996, p. 15)
Buyers' realisation of outsourcing objectives	1. Outsourcing the activity of reference has allowed your company to concentrate own resources on (e.g. staff) on core activities.	Grover el al. (1996, p. 115) and Lee and Kim (1999, p. 59)
	2. By outsourcing the activity, your company has benefited from higher quality.	
	3. By outsourcing the activity, your company – via your supplier – has benefited from better access to skilled personnel.	
	4. By outsourcing the activity, your company has benefited from greater scale economies achievable by your supplier.	
	5. By outsourcing the activity, your company has removed the need to invest in certain equipment (now under the governance of your supplier) and reduced the risk of technological obsolescence.	
	6. Your company has NOT achieved the target level of cost savings expected by outsourcing this activity.	The author
	7. Overall, the objectives set by your company in relation to the outsourcing project have been met.	Lee and Kim (1999, p. 59)

Although the author has tried to adjust for any weaknesses which past studies have shown in their measurement of the performance of the outsourcing relationships, it should be realised that selecting the appropriate measures remains a difficult task which would inevitably be subjected to a number of limitations that must be acknowledged. Indeed, in their study of organisational performance measurements, Parnell *et al.*, (2006) note that:

> *"...It is important that researchers vigorously acknowledge the shortcomings in the approaches they take to performance measurement. Such a practice may limit the findings found in many of the studies, but will result in a more precise contribution to the literature from each investigation".*

Accordingly, the main limitations of this research in general (including those to do with outsourcing performance measurement) will be acknowledged in chapter seven.

Independent variables (buyers-suppliers asset specificity dimensions)

As highlighted in section 2.4, the measurement of asset specificity has been one of the most challenging tasks faced by researchers in their empirical testing of transaction cost theory. Although there is a general agreement in the literature recognising the multi-dimensional nature of asset specificity, only few studies have so far tried to employ measurement that are capable of capturing more than one dimension of the construct in a single study, while most of these studies still end up with a single, though composite, asset specificity coefficient. This study tries to rectify this operationalisation 'weakness' in relation to asset specificity by disaggregating the construct into various buyers and suppliers' asset specificity dimensions. From the buyer's side, this study covers six specificity dimensions, namely: (i) human asset specifcity; (ii) physical asset specificity (iii) dedicated asset specificity; (iv) temporal asset specificity; (v) procedural asset specificity; and (vi) brand

capital. From the supplier's side, four specificity dimensions are considered: (i) human asset specificity; (ii) physical asset specificity; (iii) dedicated asset specificity; and (iv) site specificity. In this research efforts were made to measure all seven AS dimensions from buyers and suppliers' sides. However, some dimensions were excluded since, conceptually, they only appeared to apply and be relevant to one side of the buyer-supplier dyad (e.g. buyers' site specific investments are, at best, very rare; see section 2.4.2).

Human asset specificity could be characterised as knowledge specific assets (Dibbern *et al.*, 2005) that arise from *learning-by-doing* (Williamson, 1996, p. 105) and which have limited transferability due to their limited application in other work settings (Lamminmaki, 2005). This type of asset specificity was the type most frequently considered by the variety of measurement approaches that have been applied. In this study, this dimension was measured from the perspective of both buyers and suppliers as each party of the transaction can be faced by the necessity to incur such human asset specificity investments for the sake of the relationship (see Table 4.5).

Buyers' human asset specificity was measured by three items which were adapted from the measures employed by Bucklin and Sengupta (1993) and Heide and John (1992). These items intended to capture the degree to which skills, knowledge and experience of buyers' personnel are specific to the requirements of dealing with the outsourcing supplier (Zaheer and Venkatraman, 1995).

Suppliers' human asset specificity was measured using four items that were directly adapted from the literature. These measures were designed to capture buyers' perception of the extent of non-redeployable, knowledge-related investments that were made by the supplier in terms of customization of workflows and routines (Rodriguez and Padilla, 2005; Zaheer and

Venkatraman, 1994), and level of adaptation made through training for example (Brouthers and Brouthers, 2003).

Table 4.5: Operationalisation of the human asset specifcity construct

Dimension	Items	Sources (from which items were adapted)
Buyers' human asset specificity	1. Your company has recruited additional staff for the sole purpose of managing the outsourcing relationship.	Bucklin & Sengupta (1993)
	2. Your company has acquired new knowledge in order to adapt to the specific technological norms of your supplier.	Heide and John (1992); Poppo and Zenger (1998); Rodriguez and Padilla (2005)
	3. Your company has invested considerably in the training of personnel for the purpose of the relationship with your supplier.	Zaheer and Venkatraman (1994); Brouthers and Brouthers (2003)
Suppliers' human asset specificity	1. Your supplier has customized its own workflows and routines to the peculiarities of your company.	Zaheer and Venkatraman (1994); Rodriguez and Padilla (2005)
	2. Your supplier faced initial difficulties in learning and adapting to your company's way of doing things.	Klein *et al.* (1990)
	3. Your supplier has made a high degree of adaptation (e.g. via training) in order to provide the customized service required by your company.	Zaheer and Venkatraman (1994); Brouthers and Brouthers (2003)
	4. If you were to change your supplier, it would take a long time for a new supplier to serve as well as the current one.	Maltz (1993)

Physical asset specificity can be defined as tangible investments that are specifically tailored to a particular transaction between buyers and suppliers and the alternative use of which could have little value outside that relationship (Williamson, 1983; Joskow, 1987; Morill and Morill, 2003). Since this kind of investments can be made either by suppliers or buyers, this research measures this dimension of asset specificity in relation to both the buyer and the supplier's side (see Table 4.6).

Table 4.6: Operationalisation of the physical asset specifcity construct

Dimension	Items	Sources (from which items were adapted)
Buyers' physical asset specificity	1. Your company has invested in highly specialised equipment for the sole purpose of dealing with this supplier	Heide and John (1992) Bucklin and Sengupta (1993)
	2. A significant amount of your company's equipment would need to be scrapped should your outsourcing relationship with this supplier cease.	Ghani and Khan (2004)
Suppliers' physical asset specificity	1. Your supplier has invested in highly specialized equipment and facilities that were required for the purpose of the relationship with your company.	Walker and Poppo (1991) Klein and Roth (1990); Stump and Heide (1996) Masten *et al.* (1991) Nishiguchi (1994) Heide and John (1990); Murray and Kotabe (1995, 1999); Weiss and Anderson (1992), Klein *et al.* (1990); Lieberman (1991); Bucklin and Sengupta (1993)
	2. Your supplier has invested in highly specialized equipment and facilities that cannot easily be used in other applications outside the relationship with your company.	Lyons (1995)

Buyers' physical asset specificity was measured by two items that were adapted from Heide and John (1992), Bucklin and Sengupta (1993), and Ghani and Khan (2004). The items were designed to capture the specificity of the physical equipment invested by buyers vis-à-vis the buyer-supplier relationship and the value of such investments outside that particular relationship.

Suppliers' physical asset specificity was measured by two items using a scale that is similar in composition to the preceding one, except that it describes physical, non-redeployable, investments made by the supplier rather than the buyer.

Dedicated asset specificity refers to those assets that are of general purpose as opposed to specialised uses (physical asset specificity) but which have been made for a particular transactional agreement that is likely to entail a long term trading relationship. Should this relationship end prematurely, excess capacity will, however, be created (Williamson, 1983; Joskow, 1987; Lamminmaki, 2005). Although dedicated asset specificity could be seen as an investment that can only be incurred by the supplier, under certain circumstances, this dimension can be related to an investment made by the buyer (eg. additional investment in laboratory accessories that help firm to assess the quality of a bigger proportion of goods acquired). Accordingly, efforts were made in this research to measure this dimension of asset specificity in relation to both the buyer and the supplier's side (see Table 4.7).

Buyers' dedicated asset specificity was measured by three items that were originally developed by the author from the review of the literature and particularly from the discussions conducted by Williamson (1983), Joskow (1987), and Lamminmaki (2005).

Suppliers' dedicated asset specificity. Given the lack of studies offering items intending to measure this construct, five items had to be originally developed by the author based on the conceptual discussions offered in the literature while one item was adapted from (Dyer, 1996).

Table 4.7: Operationalisation of the dedicated asset specificity construct

Dimension	Items	Sources (from which items were adapted)
Buyers' dedicated asset specificity	dedi1b: For the purpose of the outsourcing relationship, your company has made additional investments that would result in excess capacity in the event of contract termination.	The author based on the discussion conducted by Williamson (1983), Joskow (1987), and Lamminmaki (2005).
	dedi2b: For the purpose of the outsourcing relationship, your company has made additional investments in quality control facilities which are likely to result in excess capacity in the event of contract termination.	
	dedi3b: In order to cope with the 'weight' of the relationship with this supplier, your company has made additional investments in communication facilities that are likely to result in excess capacity in the event of contract termination.	
Suppliers' dedicated asset specificity	Dedi1s: Your supplier has made extra investments in order to expand its production capacity and to be able to meet your needs.	The author
	Dedi2s: Your supplier has expanded its production capacity in the hope of a long-term relationship with your company.	
	Dedi3s: Your supplier's sales to your company represent an important share of your supplier's total sales.	Dyer (1996)
	Dedi4s: Your supplier could easily re-sell extra output or make use of additional capacity in other applications outside the outsourcing relationship with your company.	The author
	Dedi5s: Should your outsourcing relationship cease, your supplier would be left with substrantial unsold output or excess capacity (e.g. extra staff).	

Site specificity refers to a relationship that requires close proximity for reducing inventory and/or other processing costs. Once in place, however, the relocated assets involved are highly immobile and, thus, the cost of their relocation is very high (Williamson, 1983; Joskow, 1987; Morill and Morill,

2003; Lamminmaki, 2005). As discussed in section 2.4.2.3, while most studies that tried to operationalise the site specificity construct have tended to use the distance between the subcontractor and the customer's premises as a proxy (Joskow, 1987; Ghani and Khan, 2004), few studies have actually tried to investigate whether or not physical proximity was specifically due to the transactional relationship. To adjust for this measurement 'weakness', the scale employed in this research was designed to measure buyers' perception of how important close proximity is to the supplier, and the extent to which the supplier's relocation decision (if any) was specific to the outsourcing relationship (see Table 4.8). Since in most cases site specific investments (involving relocation) are incurred by the supplier with the aim of securing a long term relationship with its customer, decision was made in this research to measure site specificity only in relation to the supplier side. *The supplier site specificity* scale was measured by four items that were mainly developed from Masten (1984), Joskow (1987), and Nishiguchi (1994).

Temporal specificity refers to transactional relationships where timing and coordination are of high importance (Lamminmaki, 2005). According to Malone et al. (1987, p. 486) *"an asset is time specific if its value is highly dependent on its reaching the user within a specified, relatively limited period of time".* Due to its link to the timing of a service (or goods) delivery, most risks involved through temporal AS are on the buyer's side of the relationship. *Buyers' temporal asset specificity* was based on a four-item scale that was designed to capture buyers' perception of the importance of timing in the transactional relationship (see Table 4.9). Two of these items were developed from the measurements proposed by Brown and Potoski (2005) and Masten et al. (1991).

Table 4.8: Operationalisation of the site specificity construct

Dimension	Items	Sources (from which items were adapted)
Suppliers' site specificity	Site1s: Your supplier has relocated the whole or part of its operations for the purpose of being nearer to your company since close proximity is important to the outsourcing relationship	Masten (1984) Joskow (1987); Nishiguchi (1994).
	Site2s: Your supplier has relocated the whole or part of its operations for the sole purpose of the outsourcing relationship with your company and, hence, this relocation has little value outside this relationship.	
	Site3s: Your supplier has relocated some of its operations or assets in order to improve its services towards your company.	
	Site4s: The outsourcing relationship requires your supplier to be located near your company.	

Table 4.9: Operationalisation of the temporal specificity construct

Dimension	Items	Sources (from which items were adapted)
Buyers' temporal specificity	Temp1b: The product or service provided by your supplier requires timely delivery.	Brown and Potoski (2005)
	Temp2b: In the relationship with your supplier, precise scheduling is very important.	Masten et al. (1991).
	Temp3b: Punctual delivery from your supplier is crucial; hence any delay will result in a significant cost to your company (e.g. loss of clients).	The author based on the conceptual discussion provided in the literature
	Temp4b: In the event of delay from your supplier, your company can easily get the same product / service from another supplier.	

Brand Capital can be directly linked to reputation investment. An outsourcing relationship of high capital specificity is a relationship which involves functions that could have a direct and significant impact on the overall firm reputation. In such circumstances, the outsourcing supplier could find itself in a position enabling it to intentionally or unintentionally cause damage to the firm's reputation (Gatignon and Anderson, 1988; Lohtia et al., 1994). Clearly this asset specificity dimension is more likely to be a concern for buyers in outsourcing relationships. The *Buyers' brand capital* scale was measured by three items which were originally developed by the author drawing from the work of Gatignon and Anderson (1988), Levy (1985), and Lohtia et al. (1994) (see Table 4.10). These items were intended to capture the level of buyers' reputation investment that could be put at risk when engaging in outsourcing.

Table 4.10: Operationalisation of the brand capital construct

Dimension	Items	Sources (from which items were adapted)
Buyers' brand capital	1. In the industry in which your company operates, you cannot afford receiving a low quality product or service from your supplier since this will negatively affect your own reputation.	The author drawing mainly on the discussion conducted by: Gatignon and Anderson (1988); Levy (1985); Lohtia *et al.* (1994)
	2. Given the importance of your company in the market, your supplier must do its utmost to maintain the quality of service provided to your company.	
	3. Any underperformance from your supplier will result in a highly negative effect on your company's reputation.	

Procedural asset specificity: As highlighted in section 2.4.2.7, the business process asset specificity construct was initially developed and measured by Zaheer and Venkatraman (1994, 1995) in an attempt to capture the physical asset specificity dimension in the service industry, where considerable investment in physical components and tools are less likely to be involved.

The term, which was originally coined by Malone *et al.* (1987, p. 492), refers to organisational routines and workflows tailored to a particular relationship and which are difficult to modify once created, or to re-deploy to other purposes inside the firm without value loss or reduction. This study measures procedural specificity from the buyers' side (see Table 4.11). *Buyers' procedural asset specificity* was measured by four items, two of which were very much in line with the measures used in Barthelemy and Quelin (2002), Zaheer and Venkatraman (1994, 1995) and Heide and John (1990, 1992).

Table 4.11: Operationalisation of the procedural asset specificity construct[4]

Dimension	Items	Sources (from which items were adapted)
Buyers' procedural asset specificity	1. Your company has established procedures and routines tailored to the relationship with your supplier.	Heide & John (1990); Zaheer and Venkatraman (1994, 1995)
	2. The outsourcing relationship has entailed no changes for your employees (reversed item).	The author (item employed to test for any potential response set)
	3. The outsourcing relationship has entailed significant changes for the overall operations of your company.	Barthelemy and Quelin (2002); Heide and John (1992)
	4. The outsourcing relationship has entailed significant restructuring and downsizing (e.g. redundancies) in your company.	The author based on the review of the literature

[4] The measures employed by Heide and John (1990, 1992) were initially intended to capture the asset specificity construct in general and not specifically the procedural asset specificity construct which was not directly measured until Zaheer and Venkatraman' s (1994, 1995) empirical studies.

Reciprocal specific investments

The effect of reciprocal specific investments is assessed through the resulting interactions between all buyers and suppliers' asset specificity dimensions. This approach is consistent with that recommended by Jaccard *et al.* (1990).

Moderator variable

This study investigates the moderating effect of collaborative ties and measures it using seven-item scale that was designed to capture the degree of collaboration involved in the buyer-supplier transactional relationship (see Table 4.12). These items were mainly adapted from Noordeweir *et al.* (1990), Mohr and Spekman (1994), Goodman *et al.* (1995), Lee and Kim (1999), and Poppo and Zenger (2002).

Table 4.12: Operationalisation of the collaborative ties construct

Items	Sources (from which items were adapted)
1. Your company and the supplier have an extremely collaborative relationship.	Heide and John (1992); Poppo and Zenger (2002)
2. Your company and the supplier share both short- and long-term goals.	
3. No major disputes have so far taken place between your company and this supplier.	Lacity *et al.* (1996)
4. When your company has queries in relation to the service or product provided, the supplier's employees promptly respond with accurate information.	Noordeweir *et al.* (1990); Mohr and Spekman, (1994); Goodman *et al.* (1995)
5. Your company and the supplier do NOT generally keep each other's promises.	*Lee and Kim (1999)*
6. Your supplier is always willing to provide assistance to your company.	
7. Your company would be inclined to switch to an alternative supplier if the latter could provide a service comparable to the one offered by the current supplier at a slightly lower price (reversed item)	The author with a slight adaptation from Noordeweir *et al.* (1990)

Control variables

In line with most empirical research on vertical integration using the transaction cost approach, this study includes *firm size* as a control variable (without explicitly hypothesizing any specific direction in our model). Indeed, larger firms may be in possession of higher level of resources allowing them to invest in higher collaborative ties (Martin et al., 1995). Scherer (1980) suggests that firm size is an important factor to control for since it can have an effect on firm performance for reasons of scale and scope economy, market power aspirations, and the ability to aggregate inputs (see Anderson & Schmittlein, 1984, p. 388). Firm size was also found to affect organizational boundary decision such as outsourcing (Pisano, 1990, cited in Ang and Straub, 1998, p. 538). For example, since smaller firms tend to be more resource constrained than larger ones (Robinson, 1982), their limited capabilities and lack of vendors' efficiencies may place them into the necessity to seek additional resources from other organisations. Also, small firms could be more prone to opportunistic behaviour due to their limited resources which do not allow them to opt for some safeguard mechanisms (Heide & John, 1988). Following Poppo and Zenger (1998), Lazzarini *et al.* (2008) and Perez-Nordtvedt *et al.* (2008), this research uses the total number of employees in the buyers' companies as a proxy for firm size.

In addition, because our sample includes companies that are outsourcing various different activities, the author tried to classify them according to the activity they are outsourcing in five categories (HR-related activities other than payroll, IT maintenance and development, payroll, housekeeping, and any other type of activity). As such, five dummy variables were used to control for any activity-related effects.

Since our sample consists of companies operating in four different industries, the author used four industry dummies so as to control for industry differences. Indeed, Williamson (1985, p.143) recognises the important role

which the environmental setting can play in affecting vertical scope inferences. He points out that *"the study of economic organisation in a regime of rapid innovation poses much more difficult issues than those addressed here".*

4.6.3 Questionnaire design

The questionnaire was designed following Dillman's (2000) *tailored design method.* Knowledgeable academics (academics familiar with the term outsourcing and asset specificity and experts in the field of research methods and questionnaire design from within Oxford Brookes University) and twenty five representative CEOs and human resource directors from a sample of fifty companies reviewed, filled-in, and critiqued initial versions of the survey for both content and clarity of the questions. The revised mail questionnaire consisted of a cover letter, a tear-off detachable participant information sheet, and the set of questions to be answered by the respondents. The survey cover letter, which included information about the researcher and all contact details, promised confidentiality and anonymity, described the objectives of the study, and emphasised the voluntary nature of participation in the survey. The letter also defined the term outsourcing and stressed the importance of understanding the factors likely to affect outsourcing performance. As an inducement to reply, respondents were promised summarised results on the findings of the study (respondents were asked to complete and return the tear off sheet provided at the end of the questionnaire). The tear-off detachable participant information sheet reiterated the objectives of the study, defined again the term outsourcing, emphasised the importance of the survey, and provided respondents with a brief description of how to complete the questionnaire.

In line with most empirical studies that have tried to measure asset specificity and outsourcing performance, scale questions were employed almost throughout the questionnaire (except the screening and general questions), allowing the author to collect the required attitude and belief data in relation to

both asset specificity and outsourcing performance. The *seven-point Likert scale*, which was identified in the literature review as the most frequently used rating scale in the asset specificity measurement (see section 2.4.2), was consistently employed so as to avoid confusing respondents. Respondents were asked to rate each item on the provided seven point response options (1= strongly disagree to 7= strongly agree). Here, particular care was taken to avoid the use of items that poorly discriminate between high and low scores (Langdridge, 2004). However, in an attempt to prevent the potential occurrence of the response set problem, both positive and negative statements were included so as to 'force' the respondent to think carefully about each question (Oppenheim, 1992; Saunders *et al.*, 2000; and Langdridge, 2004). Throughout the questionnaire, open questions were kept to a minimum use (Saunders *et al.*, 2000) and were, consequently, only employed as part of the screening (filtering) and general questions. In addition, in designing the questionnaire, attempts were made to avoid exceptionally lengthy items, multiple negatives, double barrelled items and jargon (DeVellis, 1991). Careful attention to the wording of items was also paid so as to help reducing item ambiguity (Tourangeau *et al.*, 2000). Respondents were asked at the beginning of the questionnaire to identify one of the most significant activities that is being outsourced at the time of questionnaire. This activity then served as the referent for all remaining questions.

Although the full questionnaire might appear to be relatively lengthy[5], special care was taken to enhance the format, the appearance, and the overall layout of the questionnaire through the use of different font sizes and styles. While there seems to be an overall agreement in the research methodology literature over the negative effect of a lengthy questionnaire on response rates (Tull and Hawkins, 1990), Hoinville *et al.* (1978) stress that short

[5] It is worth noting, however, that the length of the questionnaire employed in this research is still within the acceptable range of number of A4 sides suggested by Hoinville *et al.* (1978). The latter suggest no more than eight to ten sides.

questionnaires do not necessarily encourage response rate and could actually look superficial and fail to capture the data required especially when dealing with complex subjects (asset specificity could be regarded as one example). Hoinville *et al.*, (1978, p. 127) suggest that *"More important perhaps than the length of the questionnaire is its appearance"*. A copy of the questionnaire together with its covering letter is included in appendix 4.1.

4.6.4 Pilot-testing

An extensive pilot-testing process has been carried out. This process involved the consultation of experts in the field, and the administration of the questionnaire to a sample of 50 companies from which 25 responses were obtained, coded and analysed. As a result, questions that were not providing useful data were discarded, ambiguous areas were clarified, definitions were added, and the final revisions of the questionnaire were made. This procedure clearly addressed both ***ISA-7*** (pre-testing) and ***ISA-10*** (pilot-testing).

While the consultation of experts achieved both face and content validity by ensuring that items in the questionnaire reflected the 'content universe', the administration of the questionnaire to a sample of 50 companies ensured that content of questionnaire was understandable to target respondents, and helped determining the extent to which constructs were demonstrating an acceptable level of reliability (through the running of the Cronbach Alpha test). Such procedure fulfilled the ***ISA-6*** requirement in relation to content validity. Further discussion about validity and reliability issues in relation to this study will be provided in the next section.

The pilot-tested questionnaire included a separate evaluation form offering respondents (including the experts reviewing the questionnaire) an opportunity to critique the instrument on matters important for good questionnaire design, such as content, format, clarity of questions, terminology as well as ease and speed of completion. In addition, respondents were asked to identify specific

questions with which they experienced difficulties. Finally, respondents were also invited to make any suggestions for enhancement (for further details on specific adjustments carried out during the pilot-testing process, please see appendix 4.2).

4.6.5 Reliability and validity considerations

The research methodology literature makes reference to two important criteria that can assist researchers in assessing their measurement tools, namely: (i) reliability; and (ii) validity. In addition to these two factors, which represent the scientific requirement for sound measurement instruments, *practicality* could be seen as a third criterion, reflecting operational requirements (Blumberg, *et al.*, 2005). This section summarises the literature on the three above-mentioned criteria and discusses the relevant methods chosen to maximise both reliability and validity of this research while considering the practicality criterion. The statistical assessment of these aspects will be further discussed in chapter five.

4.6.5.1 Reliability

Reliability can be defined as *"the correlation between a measure and itself"* (Peter, 1981, p. 136). It reflects the degree to which the measures employed provide stable measurement (Sekaran, 2000; Langdridge, 2004). As noted in Table 4.13, the research methods literature often refers to three common tests by which reliability can be assessed namely: (i) test re-test; (ii) alternative or parallel form; and (iii) internal consistency.

The *test re-test approach* provides indication of stability of measures by administering the questionnaire twice to the same respondents (Saunders *et al.*, 2000; Langdridge, 2004; Blumberg *et al.*, 2005). Among the problems associated with this method, we can mention the difficulty of convincing the same respondent to participate in the same questionnaire twice (Saunders *et al.*, 2000) and the fact that reliability usually diminish as the time interval

grows (Bohrnstedt, 1970). In addition, as highlighted by Mitchell (1996, p. 201) *'if a change in the phenomenon occurs between the first and second administrations it is very difficult to distinguish between change and unreliability".* As such, the test re-test approach has limited applications (Blumberg *et al.*, 2005) and most of the literature does not recommend its use as a sole measure for testing reliability (see for example Mitchell, 1996; and Saunders *et al.*, 2000). For these reasons the test re-test approach was not employed in this survey.

The alternative or parallel approach tries to assess reliability by looking at the *"degree to which alternative forms of the same measure produce same or similar results"* (Blumberg *el a.*, 2005, p. 385). It is obtained by applying two equivalent questions and then comparing responses to both of them. This approach can be criticised for the difficulty that researchers might face to ensure that two questions are truly equivalent. Besides, this method increases the length of the questionnaire and respondents could realise the similarity in the two questions and could hence refer back to their previous answer. For these reasons, this approach is not often recommended. Nevertheless, in certain circumstances (such as the case in this current research) the alternative or parallel approach could be employed as check questions in few parts of the questionnaire (Mitchell, 1996; Saunders *et al.*, 2000) (see for example section C, question 11 in page 7 of the questionnaire).

The most popular and widely used method for assessing reliability is the *internal consistency approach.* This approach enables to evaluate the consistency of responses across all or a sub-group of questions included in the questionnaire by estimating the inter-correlation among the scores of items (Mitchell, 1996; Saunders *et al.*, 2000). A sophisticated form of this method, which was used in this research, is *Cronbach's Alpha* which adjusts for the limitations of the basic *split-halves form* by calculating a mean of all possible split-half coefficients (Mitchell, 1996; Bryman and Bell, 2003).

Although different authors use different figures to denote an acceptable level of internal reliability, commonly values of less than 0.6 are considered unsatisfactory (Nunnally, 1978). Cronbach's Alpha values obtained following the final data collection will be reported in the following chapter. This process clearly addressed the **ISA-8** quality attribute.

Nevertheless, care was taken, at the early stage of the preparation and testing of the questionnaire, not to rely heavily on internal consistency using Cronbach Alpha so as to avoid the elimination of potentially important items and the consequent disturbance of the potentially complex factor structure (Flynn and Pearcy, 2001). Other preventive procedural, non-statistical, methods that were employed in this research to ensure reliability include the employment of the multi-item measures, the borrowing of items from published studies, and the minimisation of source of unreliability through a pre-testing procedure that ensured the non-inclusion of ambiguous and misleading words (De Vaus, 2002).

While reliability is a necessary condition for measurement validity, it is not, on its own, sufficient and must be complemented by other forms of validity (Churchill, 1979).

Table 4.13: Reliability and validity measures

Types of reliability & validity			Description	Approach
Reliability	Stability		Extent to which measures maintain stability over time.	Test re-test; alternative or parallel form
	Consistency		Extent to which measures are internally consistent.	Split-half reliability; Cronbach's Alpha Statistic
Validity	Content Validity		Extent of representativeness and suitability of the questions in addressing the concept under investigation	Obtaining comments from experts.
	Face Validity		The degree to which the measures are true from the perspective of the judgement of others.	Obtaining comments from colleagues, friends or potential respondents (generally refers to non-expert judgements[6]).
	Criterion validity	Concurrent validity	The extent to which the measures agree with pre-existing measures that are judged to be valid.	Comparing measures to existing ones.
		Predictive validity	The extent to which measures predict future events that are logically related.	The use of future criterion measure against which the validity of our measure would be examined.
	Construct validity (Measure validation)	Convergent validity	The extent to which two items measuring the same or theoretically-related concepts correlate highly.	Principle component factor analysis (Extent of factor loadings)
		Discriminant or Divergent validity	The extent to which a measure has a low correlation with a variable that is supposed to be unrelated to it.	Principle component factor analysis (examination of item loadings across constructs)

Source[7]: Synthesis drawn from: Mitchell, 1996; Saunders *et al.*, 2000; Bryman and Bell, 2003; Neuman, 2003; Langdridge, 2004; and Blumberg *et al.*, 2005.

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[6] One exception is the definition put forward by Neuman (2003, p. 183) which made reference to *"a judgment by a scientific community"*.

[7] In the light of the absence of a unified framework that brings together different academic inputs in relation to both reliability and validity issues, this table could be seen as among the rare attempts to date that tried to distill a synthesized framework on the topic. In so doing, the author consulted an important number of research methods books while referring back to the seminal works of Heeler and Ray (1972),

4.6.5.2 Validity

Validity refers to *"the extent to which a test measures what we actually wish to measure"* (Blumberg *et al.*, 2005, p. 379). There are generally four types of validity tests that are commonly reported in the research methods literature (see Table 4.13).

Content validity reflects the extent of representativeness and suitability of the questions in addressing the concept under investigation (Saunders *et al.*, 2000; Blumberg *et al.*, 2005). It could be assessed by inviting an expert or group of experts to comment on the comprehensiveness of the measurement instrument and the sampling adequacy of the included items, which could quantitatively be turned into content validity ratios (Mitchell, 1996; Blumberg *et al.*, 2005). The consultation of experts at the pre-test stage of the questionnaire was employed with the aim to achieve this.

Similarly, *face validity* could be assessed by referring to the subjective evaluations of non-experts (e.g. colleagues, friends) on the appropriateness of the items included in the questionnaire (Landridge, 2004; Mitchell, 1996; Saunders *et al.*, 2000); which was also fulfilled at the pre-test stage of the questionnaire.

Both face and content validity were also optimised through an extensive review of the literature and by trying to employ, whenever possible, measures that have been previously tested.

Criterion validity employs construct indicators, the validity of which is checked by comparing it with another measure of the same construct over which a researcher has confidence (Neuman, 2003). As shown in Table 4.13, criterion validity is composed of *concurrent validity* and *predictive validity*. While the

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Churchill (1979), and Peter (1981) which have been later comprehensively put into operation by Mitchell (1996).

former indicates the extent to which the measures agree with pre-existing measures that are judged to be valid, the latter refers to the extent to which measures predict future events that are logically related (Neuman, 2003). Criterion validity is not straight forward as the researcher must ensure that the validity criterion to be used is itself valid (Blumberg *et al.*, 2005) especially if we consider that *"construct validation is an ever-extending process of investigation and development"* (Cronbach, 1971 cited in Peter, 1981, p. 135) and that major aspects of construct validity such as dimensionality and internal consistency could change according to the research context. For this reason, care was taken when measures employed were borrowed from previous studied.

Construct validity is one of the most complex, but most important forms of validity, which necessitates theoretical awareness of factors underlying the concept(s) under investigation (Mitchell, 1996). The term 'construct validity', which *"lies at the very heart of the scientific process"* (Churchill, 1979, p.70), is used *"to refer to the vertical correspondence between a construct which is at an unobservable, conceptual level and a purported measure of it which is at an operational level... The term means that a measure assesses the magnitude and direction of (1) all of the characteristics and (2) only the characteristics of the construct it is purported to assess'* (Peter, 1981, p. 134).

Convergent validity refers to the convergence of multiple indicators or measures of the same construct (Neuman, 2003). It is based on *"the correlation between responses obtained by maximally different methods of measuring the same construct"* (Campbell and Fiske, 1959 cited in Peter, 1981, p. 136). Convergent validity in this research was tested using principle component factor analysis and looking at the extent of factor loadings (see for example Ang and Straub, 1998).

Discriminant or divergent validity refers to *"low correlations between the measure of interest and other measures that are supposedly not measuring the same variable or concept"* (Heeler and Ray, 1972, p. 362); which also reflects *uni-dimensionality* of the set of items measuring the concept in question. It could be determined by revealing that a measure does not correlate very highly with other measures from which it is supposed to be different (Campbell, 1960, cited in Peter, 1981, p. 137). Once again, statistical tools such as factor analysis could be employed in assessing the discriminant validity of a construct (Emanuel and Bramble, 1989), by examining for example the item loadings across constructs in a rotated principle component factor analysis making sure that no item loaded high on another construct that it did not intend to measure (Ashill and Jobber, 2005); a method which is employed in this research. In addition, discriminant validity is further tested in this research through the use of Pearson correlation. These statistical assessments will be reported in the following chapter.

By addressing both convergent and discriminant validity, this research managed obviously to fulfil Malhotra and Grover's (1998) ***ISA-9*** quality attribute. The suitability of the collected data for the running of factor analysis and the full procedure of carrying it out including a discussion in relation to the fulfilment of the item to subject ratio (***ISA17***) will all be presented in the next chapter (see section 5.9.1). Statistical tests in relation to both non-response and common method bias will also be presented in the next chapter, hence fulfilling ***ISA 15*** quality attribute (see section 5.3, 5.4, and 5.10).

4.6.5.3 Practicality

In assessing and validating the measures employed in this study, the author has also taken into account practical issues which can introduce some kind of trade-off between the ideal research project and the resource constraints. Indeed, as highlighted by Blumberg *et al.* (2005), factors including budget,

time constraints, degree of expertise, and convenience would ultimately play an important role in dictating the choice of validity checks to be used (Blumberg *et al.*, 2005).

4.7 Research ethics

This research project has received clearance by Oxford Brookes University's Research Ethics Committee (see appendix 4.3). The author considered the recommendations put forward by the committee in their letter of approval. The questionnaire included both a cover letter and an additional tear-off information sheet since cover letters could easily get separated from the actual questionnaire particularly in the case when the questionnaire is passed from one colleague to another for completion. Such instance of separation has already been noted during the pilot-testing process (see appendix 4.2).

4.8 Conducting the main survey

In line with Artz (1999) and Wang (2002), the author designed the research to aim at respondents who are highly knowledgeable of their firms' outsourcing activities. Since HR activities are generally ranked as top activities being outsourced[8] (see, Gurchiek, 2005; and Wahrenburg *et al.*, 2006), HR directors were believed to be key informants in relation to outsourcing. In addition, the nature of industries targeted (service-related) entails lower likelihood for our survey to reach companies with traditionally outsourced activities such as logistics (which would be more prominent among manufacturing companies for example), leading the author to believe that it would be more likely for the targeted companies to outsource HR related-activities. Pre-survey phone conversations, with a randomly selected number of firms from our sample, confirmed that, in majority of cases, HR directors were, indeed, informative about the outsourcing activities within their respective companies. However, if

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[8] *"A 1996 Hewitt Associates survey of large employers found that 93% of respondents outsourced some of their HR functions. Similarly, an American Management Association survey found that 77% of firms surveyed in 1996 outsourced some of their HR activities, up from 60% in 1994"* (Greer *et al.*, 1999). In addition, a 2004 survey carried out on 120 companies in North America and Europe showed that 80% of companies that outsource HR functions would do so again (Conference Board, 15th April, 2004).

lacking the required information, HR directors were asked, in the cover letter, to pass the survey to a more knowledgeable person within the company.

A pre-paid self-addressed envelope was enclosed with the questionnaire to be used for returning the completed questionnaire. There is a general agreement in the research methods literature over the positive effect of such practice as it implies the actual importance of returning the questionnaire completed (Dillman, 2000; Edwards *et al.*, 2002). To add a personal touch and to increase the likelihood of the envelope reaching the intended recipient, most envelopes were personally addressed to the name of HR directors of the targeted company (except in a few occasions where the name of the HR director could not be identified). It was believed that respondents would be more encouraged to open an envelope which was specifically addressed to them (Webb, 1992).

Three weeks after the initial mailing, a second mailing, which included a copy of the questionnaire and a prepaid return envelope, was addressed to a random sample of 1000 non-respondents. This follow-up process is widely believed to be an effective mechanism to increase the response rate (see among others Jobber and O'Reilly, 1996; Dillman, 2000; Edwards *et al.*, 2002)

4.9 Concluding remarks

Given the nature of this research and taking into account the resource constraints, a mail survey was chosen as to be the most appropriate method for enabling the collection of quantitative data through which research hypotheses could be tested. This chapter reported the process of the research design, sampling, questionnaire design and administration, as well as scale development and all related reliability and validity issues. The methodology employed in the course of this research tried to reach an important degree of rigour by augmenting the widely known Churchill's (1979) traditional paradigm for instrument development through the consideration of Malhotra and

Grover's (1998) Ideal Survey Attributes (ISAs). As can be seen from Table 4.14, all but four of Malhotra and Grover's (1998) 17 ISAs were applied in this research methodology suggesting a more than adequate level of rigour in developing a valid and reliable measurement of key constructs (e.g. asset specificity and outsourcing performance).

Table 4.14: A summary of the methodological actions carried out in the development and validation of the research instrument

Phase	Churchill's Four Phases	Action taken in the course of this research	ISAs covered
1	Construct domain specification	• Extensive review of studies touching upon asset specificity (AS) and outsourcing performance. • Categorisation of various (AS) and outsourcing performance definitions.	ISA-1
2	Item generation & questionnaire design	• Implementation of Dillman's (1978) total design method in developing the questionnaire instrument • Incorporation of both positive & negative statements (to avoid the response-set problem) • Double-barrelled questions & use of jargon were both avoided (Tourangeau *et al.*, 2000) • Measure-comparison effort through an extensive review of studies touching upon the operationalisation of AS & outsourcing performance.	ISA-2 ISA-5
3	Measure purification	• face and content validity (pre-testing and pliot-testing of the questionnaire) • Pre-testing through the consultation of experts in the field. • Pilot-testing through the administration of the questionnaire to a sample of 50 companies.	ISA-6 ISA-7 ISA-10
4	Data collection & post-data collection analysis	• Use of stratified sampling method. • Justification of sample frame. • Random selection from each stratum of the sample frame. • Suitability of the application of the factor analysis (item-subject ratio) • Convergent & discriminant validity (factor loading through principle componenent factor analysis, Pearson correlation) • Reliability (Cronbach's Alpha) • Non-response bias (Chi-square test & ANOVA test on early & late respondents) • Common method bias (Harman's one factor analysis augmented by Podsakoff's *et al.* (2003) framework.	ISA-3 ISA-12 ISA-13 ISA-17 ISA-9 ISA-8 ISA-15

CHAPTER FIVE: EXPLORATORY DATA ANALYSIS

5.1 Chapter Overview

This chapter presents the exploratory data analysis of the research. After reporting the response rate, the results of the tests for non-response bias, and the ways in which outliers were handled, descriptive statistics regarding the general profile of respondents and research key variables are presented. The measurement scales used are, thereafter, purified using exploratory factor analysis. The chapter ends with an extended note over the reliability and validity of the extracted factors.

5.2 Response rate

As highlighted in section 4.5.4 (in the previous chapter), a stratified random sampling of 2400 companies (600 from each of the four industries) was employed for data collection. The initial survey was followed by a follow-up mail survey consisting of a sample of 1000 non-respondents. Out of the 2400 questionnaires, 2286 reached the intended recipients, and a total of 286 were returned, yielding a 12.5% *overall response rate or rate of return* (see Lever, 1997; and Widener and Selto, 1999). Among the 286 respondents, 20 refused to take part in the survey. The main reasons expressed were lack of time and companies' policy (see Table 5.1).

Table 5.1: Reasons for not taking part in the questionnaire as highlighted by respondents

Reasons for non-participation	Frequency	Percentage
I do not have time to complete the questionnaire	10	50%
It is the company policy not to take part in questionnaires	6	30%
I am not aware of any activities being outsourced	1	5%
The company is still in its preparatory stage of outsourcing	1	5%
The company is in transition period (change in management)	1	5%
The company is not operating on a proper basis	1	5%
TOTAL	**20**	**100%**

In addition, 118 respondents of the remaining 266 reported that they had not been engaged in any outsourcing projects. Out of the 148 firms with outsourcing experience, 11 had to be dropped since they were either unreliable (as they failed the validity check test) or had particularly poor entries (counting more than 10 missing values), leaving us with 137 usable responses (6.3% usable response rate[1]) (see Table 5.2).

Even though the above usable response rate could be regarded as relatively low, according to Babbie (1973) *"demonstrating a lack of response bias is more important than a high response rate"* (Babbie, 1973, cited in Wang, 2002, p. 168). In addition, as noted by Collis and Hussey (2003, p. 175), within postal self-administered questionnaires, *"response rates of 10 per cent or less are not uncommon".* Such relatively low response rate is not unusual among studies targeting a large sample (eg. Gonzalez *et al.* 2005). Besides, although at first sight it might be perceived that our usable final sample may be on the low side to ensure reliable inferences, it is worth noting that it is not uncommon for factor analysis to be reliably and validly applied using a sample that is even less than 120 (see of example Widener and Selto, 1999; Wang, 2002; and Templeton *et*

[1] This has been calculated applying Saunders *et al*'s (2000, p. 157) suggested method: total usable responses / total number in sample – (ineligible + unreachable).

al., 2002). Moreover, 137 usable responses fall well within the range that was recommended by Spector (1992). Furthermore, as highlighted by Tabachnick and Fidell (2001) smaller sample size could be sufficient when there are several variables with high loadings (e.g., >.80).

Table 5.2: Distribution of questionnaires' return

	Numbers	Percentage
Sent	2400	
Undelivered	117	
Reached	2283	100%
Returned	286	**12.5%**
Of which		
Refused to participate	20	7%
Not usable	11	4%
Ineligible	118	41%
Usable	**137**	48%

5.3 Non-response bias

Generalisation of results from this research requires the final sample to be representative of the sample frame. As mentioned in the previous chapter, the initial sample, to which the questionnaires were sent, was drawn using the stratified sampling method that increases the likelihood of achieving representativeness of the sample (Saunders *et al.*, 2000). Nevertheless, the non-response issue that is associated with surveys does not only mean a reduction in the final sample size but can also lead to the creation of bias. Consequently, adequate attention should be directed to the issue of 'non-response bias'.

Non-response bias occurs when the *final sample* responding to the survey is not representative of the *initial sample* to which the questionnaire was sent. This could be due to systematic differences in both groups which could be reflected in their responses thus leading to potential bias in the final results (Dillman, 2000; De Vaus, 2002).

To check for non-response bias, both the Chi-square test and the analysis of variance test were performed so as to confirm or refute the existence of bias. Respondents were divided into two groups: the respondents to the first mailing and the respondents to the follow up (see Table 5.3). In line with *the extrapolation method* over successive waves, it was assumed that respondents to the follow up were "less readily" to take part in the survey and, consequently, were considered most similar to non-respondents (Armstrong and Overton, 1977).

Table 5.3: Early and late respondents

	Receipt	Frequency	Percentage (%)	Cumulative %
Early (before reminder)	5 weeks	105	76.6	76.6
Late (following reminder)	6 weeks	32	23.4	100.0
Total	11 weeks	137	100.0	

As can be seen from the above table, most of the usable questionnaires (76.6%) were returned before any follow-up. The reminders (that were randomly sent to 40% of the non-respondents) captured the remaining 23.4% of the usable sample. The Chi-square test was considered appropriate for examining differences between the two groups (early and late respondents) in terms of categorical background variables that are important in this research, namely firm size and industry type (Greer and Ireland, 1992; Pallant, 2001). An additional one-way ANOVA test was used to explore differences between each set of groups with regards to key continuous research variables (Wang and Ahmed, 2004).

5.3.1 Chi-Square test regarding firm size

The Chi-square test was used to explore differences between each set of groups regarding firm size. The latter is divided into three sub-groups depending on the number of employees[2]. Using the European Union classification of firm size the following cut-offs were used: i) Small firms: 1-49 employees; ii) medium firms: 50-249 employees; iii) large firms: over 249 employees (Brown *et al.*, 2001). Table 5.4 shows the distribution of the groups of early and late respondents across firm size categories.

Table 5.4: Cross-tabulation – early & late respondents v. type of respondents

		FIRM SIZE			Total
		small	*medium*	*large*	
Respondents	*Early*	43	39	23	105
	Late	15	8	9	32
	Total	58	47	32	137

As can be seen from Table 5.5, the Chi-square test revealed a statistically insignificant difference between the two groups of respondents in relation to firm size (=1.664; df= 2; p= 0.435).

Table 5.5: Chi-Square Tests regarding firm size

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.664(a)	2	**.435**
Likelihood Ratio	1.720	2	.423
Linear-by-Linear Association	.000	1	.985
N of Valid Cases	137		

Note: 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.47.

[2] A high correlation was detected between the firms' number of employees and their respective turnover.

5.3.2 Chi-square test regarding industry type

A chi-square test was also employed to compare the two groups with reference to the industry type. The distribution of the two groups across industries is shown in the following table.

Table 5.6: Cross-tabulation – early and late respondents across industries

		IT	TEL	HOTEL	BANKING & FINANCE
Early Respondents	Count	29	25	26	25
	% within early resp	27.6%	23.8%	24.8%	23.8%
	% of total	21.2%	18.2%	19%	18.2%
Late Respondents	Count	11	4	6	11
	% within late resp	34.4%	12.5%	18.8%	34.4%
	% of total	8%	2.9%	4.4%	8%
Total	Count	40	29	32	36
	% of total	29.2%	21.2%	23.4%	26.3%

As can be seen from Table 5.7, the asymptotic significance value for the Chi-square test is 0.349 (= 3.287; df =3; *p*= 0.349) indicating no statistically significant difference between early and late respondents across the distribution of firm size. It is also worth noting that all cells have expected frequencies of 5 or more, which indicates a non-violation of the assumption in relation to the 'minimum expected cell frequency' (Pallant, 2001).

Table 5.7: Chi-Square Test regarding industry type

	Value	df	Asymptotic Significance. (2-sided)
Pearson Chi-Square	3.287(a)	3	**.349**
Likelihood Ratio	3.413	3	.360
Linear-by-Linear Association	.125	1	.912
N of Valid Cases	137		

Note: 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.77

Although the results of the chi-square tests showed no significant differences both in terms of firm size and industry type, a further ANOVA test with reference to the remaining key research variables was carried out. Indeed, as highlighted by Van Goor and Van Goor (2007, p. 221) *"non-response bias in substantive variables is generally larger and of more consequence than non-response bias in background variables".*

5.3.3 One-way ANOVA test for key variables

Using the one-way (between groups) ANOVA test, the two groups were compared on all continuous variables. The results revealed that there was no significant difference (at the 5 per cent significance level) between the two groups on all continuous items (the lowest *p*= .051, with 98% of items reporting no significant difference at 10 per cent level), indicating the absence of significant response bias (see appendix 5.1).

An additional Mann-Whitney U test was conducted for comparing early and late respondents. The results showed high Mann-Whitney Test values and probability values *(p)* higher than .05, confirming the non-existence of response bias (see appendix 5.2).

While the total non-response bias that stems from a total failure to reply has traditionally attracted adequate attention, the item non-response issue seems to have been either largely neglected (Riphahn and Serfling, 2005; Winkler and McCarthy, 2005; Roth, 1994) or inappropriately addressed. Indeed, Dillman *et al.* (2002) raise concerns over the fact that most current survey missing-data adjustments are carried out while taking the random missingness assumption for granted. Nevertheless, if such missing data are due to unobservable determinants, and if this is ignored in the analysis, then the accuracy of the results could seriously be affected, potentially introducing bias (Van Den Berg *et al.*, 2006; Batista and Monard, 2003). This view has been echoed by Olinsky *et al.* (2003) who pointed out that missing data resulting from the non-response of particular survey questions does raise issues of bias that cannot be ignored.

Therefore, in order to give missing values the attention they deserve, the following section will try to firstly assess the randomness of the missing data so as to accordingly employ the right strategy in dealing with the item-non response issue.

5.4 Item non-response bias

Item non-response refers to the failure to answer one or more of the questions that should be answered, resulting in *missing data* (Hoinville *et al.*, 1978). These exclude any *empty data* for which a blank can itself imply an answer or also any other data that is not required due, for example, to a filter question (Saunders *et al.*, 2000; Winkler and McCarthy, 2005). Reasons for item non-response could include: (i) inability to respond due to either difficulty in understanding the question or to a lack of knowledge (Shoemaker *et al.*, 2002); (ii) refusal to answer a particular question (Batista and Monard, 2003; Shoemaker *et al.*, 2002); and (iii) unintentional skipping of items (Helms, 1999).

5.4.1 Extent and randomness of missing values

Although, as explained in section 5.2, five replies had to be dropped since they contained more than ten missing values, among the retained 137 replies, 48 cases still contained less than four missing values. The author was able to retrieve from the database some of the missing values that were related to the general profile questions (eg. number of employees, industry of belonging, date of incorporation) which brought the number of cases containing missing data to 39. Although the ratio of the number of missing values over the number of total values was below 0.5%, a deeper exploration aiming at identifying the missing rate of each item was carried out (see Table 5.8).

Table 5.8: Frequency and rate of missing data

Questions' category	Questions / items	Missing frequency	Missing rate
General profile questions	Number of employees	0 (4 initially missing values were retrieved from the database 2.9%)	0%
	Industry of belonging	0 (5 initially missing values were retrieved from the database 3.6%)	0%
	Date of incorporation	0 (6 initially missing values were retrieved from the database 4.3%)	0%
	Turnover	16 (18 of which 2 were retrieved from the database	11.7%
	Job title	3	2.1%
Informative questions	Number of outsourcing projects	13	9.5%
Questions measuring research constructs	Your supplier could easily re-sell extra output or make use of additional capacity in other applications outside the outsourcing relationship with your company.	3	2.1%
	Any underperformance from the supplier will result in a highly negative effect on your company's reputation.	2	1.5%
	Your company assists this supplier in relation to lowering production costs and improving delivery.	1	0.7%
	By outsourcing the activity, your company has benefited from greater scale economies achievable by your supplier.	1	0.7 %
	By outsourcing the activity, your company has removed the need to invest in certain equipment (now under the governance of your supplier) and hence reduced the risk of technological obsolescence.	1	0.7%
	Your company has not achieved the target level of cost savings expected by outsourcing this activity.	1	0.7%

As can be seen from the above table, only two questions had more than 9% missing rates. The first is a general profile question that asks about the annual

turnover of the company (11.7% missing rate). The second could be classified as an informative question that draws upon the number of outsourcing projects that were undertaken during the past five years (9.5% missing rate). Regarding the turnover question, the missing data could most probably be attributed to a refusal to answer due to the sensitivity of question which requires financial data to be revealed. As for the question on the number of outsourcing projects, lack of knowledge could have affected the respondents' capacity to answer this particular question.

In order to implement the right strategy for dealing with the two missing values identified (turnover and number of outsourcing projects), an assessment of the randomness of the missing data was carried out. Indeed, according to Tabachnick and Fidell (2007, p. 63) *"although the temptation to assume that data are missing randomly is nearly overwhelming, the safest thing to do is to test it"*. To this end, a dummy variable with two groups, cases with missing and non-missing values on *turnover*, was constructed and a test of mean differences between the two groups performed on all continuous items using the *independent-samples t-test* (see appendix 5.3). The t-test revealed no significant difference between the two groups on more than 94% of all continuous items (with only 3 out of the 52 continuous items showing a significant difference).

A further Mann-Whitney U test on all continuous items showed no significant difference on more than 94% of items (see appendix 5.4). The only three items (out of 52) in which the two groups showed a significant difference are reported in the following table:

Table 5.9: Presentation of the Mann-Whitney U Test results

Items	Asymptotic Significance (2-tailed)
For the purpose of the outsourcing relationship, your company has made additional investments that would result in excess capacity in the event of contract termination.	0.018
The product or service provided by your supplier requires timely delivery.	0.017
In the relationship with your supplier, precise scheduling is very important.	0.041

Although the above two items showed a statistically significant difference between the two groups, refusal to answer the turnover question is not logically related to the above items. Given this fact, and taking into account the small sample size of the group with missing values (16), this result could be interpreted as reflecting no significant difference between the two groups on all continuous items.

As for the missing data on *the number of outsourcing projects*, another dummy variable with two groups (cases with missing and non-missing values) was constructed and a test of mean differences between the two groups was performed on all continuous items using the *independent-samples t-test* (see appendix 5.5). The test revealed no significant difference between the two groups on 50 (out of 52) continuous variables.

Moreover, a further Little's MCAR test (see Tabachnick and Fidell, 2007, p.63) carried out on all continuous items using the Missing Values Analysis (MVA) shows a statistically insignificant result (Chi-Square =267.714, df =262, Sig=.391), which indicates that the probability that the pattern of missing values diverges from randomness is greater than .05. This confirms the randomness of our missing data which could be classified as *MCAR* (Missing Completely At Random) (see Tabachnick and Fidell, 2007). The latter *"occurs when the probability of an instance (case) having a missing value for an attribute does not*

depend on either the known values or the missing data" (Batista and Monard, 2003, p. 520).

5.4.2 Handling missing data

Following the seminal work of Rubin (1987), a number of techniques have been developed and proposed for dealing with the issue of missing values (see methods as summarised in Roth, 1994; and Little and Rubin, 2002). These include variable and case deletion, mean substitution, and multiple imputations. Table 5.10 provides a summary of the main techniques.

Table 5.10: Main methods for handling missing values

Method	Advantage	Disadvantage	Use
Deleting variables	Easy to employ	Could affect the research analysis if the variable to be dropped is critical	Most appropriate when missing values are MCAR and are concentrated in a few variables that are not critical
Listwise deletion	Easy to employ and it is the default option in most programmes of the SPSS package	Sacrifices a large amount of data & reduce the power of dataset	Most appropriate when missing data is MCAR and when very few cases are missing not in a scattered way
Pairwise deletion	Easy to employ using packages and preserves more information than Listwise deletion	Could lead to mathematically inconsistent correlations and difficulty in interpretation	Most appropriate when missing data is MCAR and when very few cases are missing but in a scattered way
Mean substitution	It preserves data and easy to employ	Reduction in the variance of the variable	Most appropriate when the data is missing at random and the amount of missing data is very low (less than 5%)
Imputation by regression	Greater objectivity Variability and covariance are better preserved	Reduced variance and necessity of having good IVs in the dataset.	Most appropriate when data are missing in non-random pattern (MNAR) and when more than 20% of the data is missing.
Expectation maximisation	More accurate estimates than pairwise deletion	Algorithm could take long time to converge, carry a degree of complexity	Most suitable for statisticians or extremely adept quantitative researchers
Multiple imputation	Can be applied to longitudinal data; makes no assumption about the randomness of missing data.	Involves several steps in the estimation of missing data	Could be used regardless of the randomness of the missing data.
Hot-deck	Increased accuracy	Requires specialised software; Difficulty in estimating the standard error; difficulty to manage the number of classification variables	Most appropriate when data is missing randomly within subgroups.

Source: Adapted from Roth (1994); Helms (1999); Little and Rubin (2002); Olinsky *et al.* (2003); Batista and Monard (2003); Winkler and McCarthy (2005); and Tabachnick and Fidell (2007).

Since the majority of the missing values are concentrated on the *turnover* and the *number of outsourcing projects* variables which are not so critical to our analysis, and given the established randomness of these missing values, both items will be dropped (variable deletion method).

As for the other missing values (other than turnover and number of outsourcing projects), they have a very low missing rate (less than 2.5%) and are missing in a random pattern which could be attributed to unintentional skipping. For this kind of missing values, one could employ any of the handling techniques. Indeed, according to Tabachnick and Fidell (2007, p. 63) *"if only a few data points, say, 5% or less, are missing in a random pattern..., the problems are less serious and almost any procedure for handling missing values yields similar results"*. Nevertheless, while the general profile item (job title) could be dropped as it is not so critical to the analysis, the other missing values on the construct-related items cannot be dropped as they are particularly important to the analysis. Moreover, since these missing values are scattered throughout cases, a listwise deletion should also be avoided since this would reduce the size of the sample by 6.5% and thus significantly reduce valuable degrees of freedom and hence the power of the database.

Alternatively, given the low missing rates and the randomness of the missing data, this research could adopt the mean substitution (MS) method in handling the missing values in question. In this method, *"the mean value of the variable for all existing values of that variable are calculated and substituted for all cases with a missing value for that variable"* (Olinsky *et al.*, 2003, p. 56). The actual methods employed for the relevant items are reported in Table 5.11.

Table 5.11: Methods employed for handling missing values in this research

Questions / items	Missing rate	Method employed
Number of employees	2.9%	**Retrieval from the database**
Industry of belonging	3.6%	
Date of incorporation	4.3%	
Turnover	11.5%	**Variable deletion method**
Number of outsourcing projects	9.5%	
Job title	2.1%	
Your supplier could easily re-sell extra output or make use of additional capacity in other applications outside the outsourcing relationship with your company.	2.1%	**Mean Substitution**
Any underperformance from the supplier will result in a highly negative effect on your company's reputation.	1.5%	
By outsourcing the activity, your company has benefited from greater scale economies achievable by your supplier.	0.7 %	
By outsourcing the activity, your company has removed the need to invest in certain equipment (now under the governance of your supplier) and hence reduced the risk of technological obsolescence.	0.7%	
Your company has not achieved the target level of cost savings expected by outsourcing this activity.	0.7%	

5.5 Data screening

Once the S.P.S.S file was created, all the variables were labelled and defined, data were entered, and a screening process checking for and detecting of

errors was carried out. The first step was to check for scores that were entered by mistake and which fell outside the possible range leading to a possible distortion of the analyses. Such *out-of-range values* were checked through the examination of the minimum and maximum values so as to make sure that they all were within the range of possible scores (Pallant, 2001; Tabachnik and Fidell 2007). Following this preliminary screening, outliers were identified and attempts were made so as to reduce their deleterious. Indeed, as emphasised by Dancey and Reidy (2004, p. 57) *"we need to be aware of whether or not data contain such extreme scores if we are to draw the appropriate conclusions from the statistical analyses".*

5.5.1 Checking for outliers

An outlier could be defined as *"a case with such an extreme value on one variable (a univariate outlier) or such a strange combination of scores on two or more variables"* (Tabachnick and Fidell, 2007, p. 72). Using the *histogram* and the *stem and leaf plot*, and calculating the *5% trimmed mean*, it was found that the open question related to the number of employees together with 33% (22 out of 68) of continuous items (that were measured using a 7 point-Likert scale) contained a number of outliers.

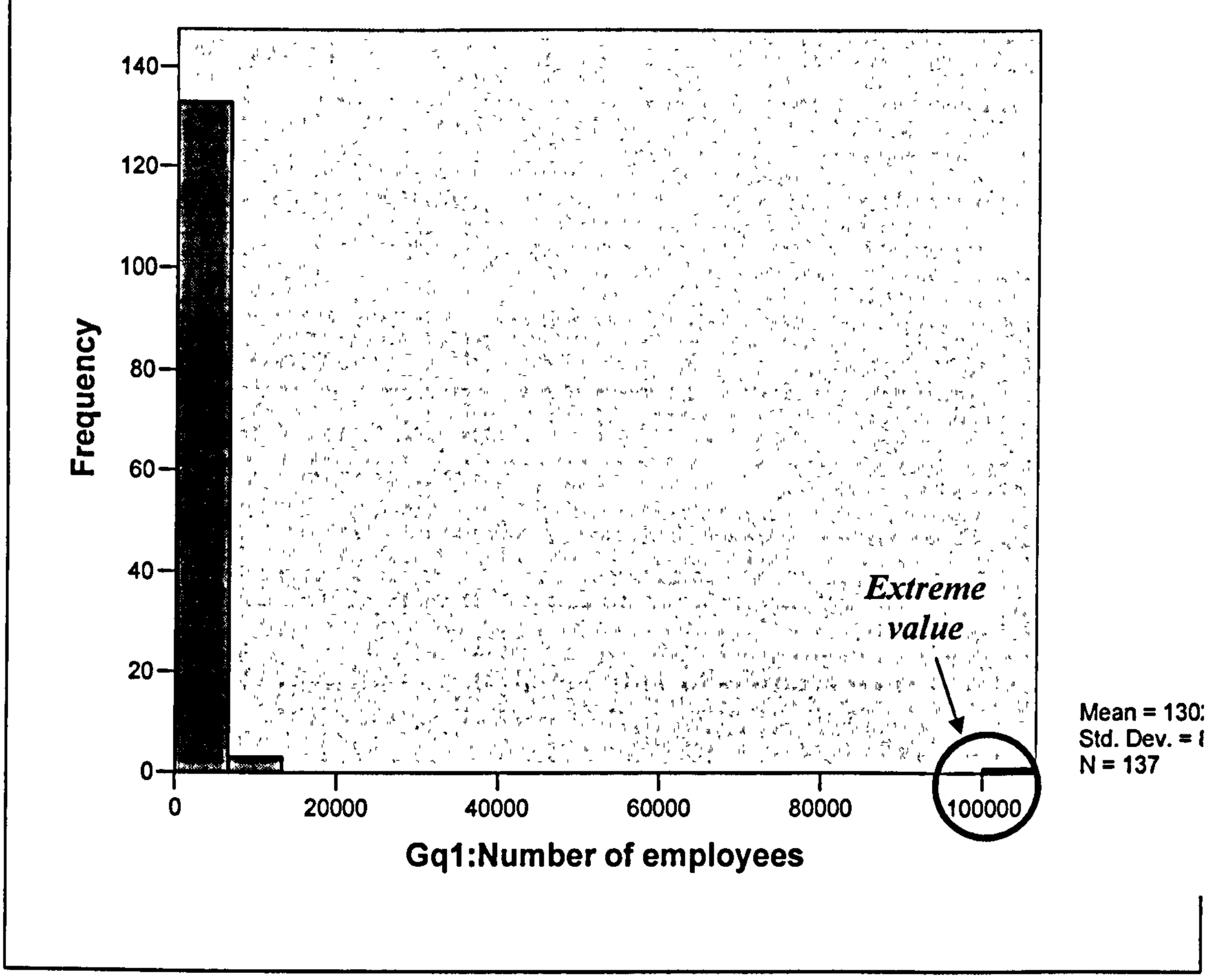
5.5.2 Dealing with outliers

As highlighted by Tabachnick and Fidell (2007), the first step in dealing with outliers is to firstly check the data for each case containing outliers so as to make sure that the information was correctly entered in the SPSS file and, secondly, to verify whether one or few variables are responsible for most of the outliers (in which case the elimination of the variables in question could become an option to be considered). As far as our case is concerned, it was found that all the data were accurately entered and outliers were relatively evenly spread across the 22 items (variables); a finding which precludes us from using the variable-deletion option. It should be noted, however, that items in relation to *physical asset specificity* contained more outliers than items that

were measuring other dimensions; a fact which will be taken into account at a later stage of the analysis.

Having decided to keep the variables, following the suggestion by Tabachnick and Fidell (2007), a further exploration of the cases containing outliers was conducted so as to check whether there were any particular cases that contained most of the extreme values. Such process revealed the existence of three cases containing more than three instances of outliers each. While one of the cases contained high extreme values in most of the physical and site specificity variables, the outliers in the other two cases showed particularly low extreme values in both collaborative ties and performance-related items. Since according to the review of the literature site asset specificity entails relocation of parts or the whole of production facilities and hence may be viewed as sharing similarities with physical investments, and since outsourcing performance is expected to be positively correlated to collaborative ties (as highlighted in section 2.4.2 in chapter two), the author chose not to drop the three cases. Besides, the fact that respondents' answers were constrained to a 7-point Likert scale, raises legitimate doubts as to whether the cases in question could be classified as real outliers. As far as the open question on the number of employees is concerned, the descriptive statistics showed a highly extreme value of '104400 employees', which could have a big effect on the statistical mean of the variable 'number of employees' (see Figure 5.1).

Figure 5.1: Distribution of the number of employs scores across the sample



Indeed, comparing the number of employees statistical mean with and without the extreme value in question, we can see a huge difference (1302 as compared to 544) (see Table 5.12).

Table 5.12: Descriptive statistics in relation to the number of employee item

Question		
Number of employees	Min	1
	Max	104400
	Mean	1302
	Mean excluding the extreme case	544

In such circumstances, Tabachnick and Fidell (2007) recommend either the *transformation of variable* or *the adjustment of scores*. While the former is not universally recommended as it can make variables harder to interpret, the latter is often described as an attractive alternative enabling the reduction of the impact of a univariate outlier. Given the big differences between the 1st and 2nd extreme values (104400 compared to 9800), in line with Tabachnick and Fidell's (2007) suggestion and after verifying that the company in question does not differ in nature from the overall sample, it was decided to assign the 1st extreme value a raw score that is one unit larger than the next extreme score in the distribution, hence replacing the 104400 value with the score of 9801.

5.6 General profile of respondents

Towards the end of the questionnaire, respondents were asked about the general profile of their companies. These questions focused upon the number of employees, the industry in which the company operates, and the year in which the company was established.

5.6.1 Firm age

Using an open question, respondents were asked to provide information about their firm's year of incorporation. Firm age was calculated as of year 2006. The average firm age was 23.4 years. As can be seen from the following

table, the majority of companies which were included in our usable sample were less than 10 years old (41.6%). 23.4 % of respondents reported a firm age between 11 and 20 years, while 35% of firms were incorporated more than 20 years ago.

Table 5.13: Distribution of respondents by firm age

Firm Age	Frequency	Percentage %
Less than 10 years old	57	41.6
Between 11 and 20 years old	32	23.4
More than 20 years old	48	35
Total	137	100

5.6.2 Firm size

Respondents were asked to provide information regarding the number of employees they have in their companies. The reported number of employees ranged from 1 to 9801, averaging 611. As shown in Table 5.14, the majority of respondents could be classified as small firms reporting a number of employees that is between 1 and 49 (42.4%), followed by medium sized firms (34.3%), and large firms (23.3%). It is not surprising that the least number of respondents comes from large firms as directors in such companies may tend to be less willing to respond due to time constraint (see also Pervan, 1998).

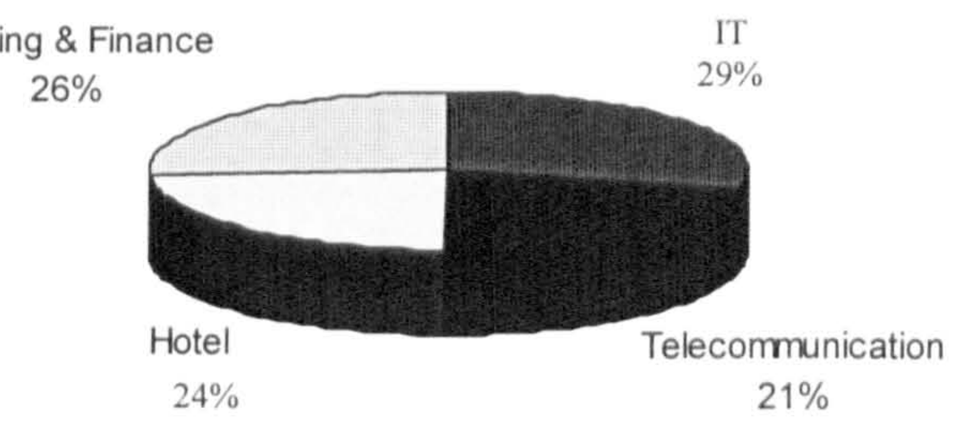
Table 5.14: Distribution of respondents by firm size

Firm Size	Frequency	Percentage %
Small		
1-49 employees	58	42.4
Medium		
50-249 employees	47	34.3
Large		
Over 249 employees	32	23.3
Total	137	100

5.6.3 Industry type

The responses were spread across the four targeted industries with each industry counting more than 20% of responses. As shown in Figure 5.2, 30% of respondents operate in the IT industry, 26% in the banking and finance industry, 23 % in the hotel industry, and 21% in the telecommunication industry. Such a relatively even representation of industry sector among the usable responses further confirms the lack of non-response bias (as demonstrated in section 5.3.2).

Figure 5.2: Distribution of respondents by industry type



Nevertheless, in order to obtain an accurate overall picture in the subsequent analyses by industry type, these relatively small differences in response rates across industries (strata) should be taken into account by calculating and applying the weighting cases[3] (Saunders *et al.*, 2000) (see Table 5.15).

Table 5.15: The weighting cases for different industries strata

	Industries			
	IT	**Tel**	**Hotel**	**Business & Finance**
Weight	40/40 = 1	40/29 = 1.38	40/32 = 1.25	40/36 = 1.1

5.6.4 Distribution in relation to the type of activities being outsourced

Given the fact that a priori we did not have a precise idea about the type of activities that were outsourced by targeted firms, respondents were asked at the beginning of the questionnaire to identify the most significant one that is being outsourced at the time of questionnaire. Upon the receipt of the questionnaire, the identified activities were classified into four categories (HR-related activities, IT maintenance and development activities, housekeeping activities, and other activities). Although most of the outsourced activities highlighted by respondents were spread across a wide variety of activities (assembled under 'others'), the author was able to identify three categories under which the rest of outsourced activities were classified. 18.2% of outsourced activities were related to IT maintenance and development, 14.6 % were HR-related, and 11% were to do with housekeeping (including catering and laundry) (see Table 5.16).

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[3] This could be calculated by dividing the highest proportion of population responding in any stratum (in our case IT industry) by the proportion of population responding in stratum for which we are calculating the weight (Saunder *et al.*, 2000, p. 336).

Table 5.16: Distribution of respondents by type of activity being outsourced

Categories	Sub-categories	Frequency	Percentage %
HR-related activities	Payroll	12	
	Training & development	5	
	Recruitment	3	
	Total	20	14.6%
IT maintenance and development	Software design and development	5	
	Database maintenance	15	
	IT hosting and support (including web-design)	5	
	Total	25	18.2%
Housekeeping	Catering	3	
	Laundry	7	
	Cleaning-related activities	5	
	Total	15	11%
Others	Includes all other diverse activities	77	
	Total	77	56.2%

5.7 Descriptive statistics: *Outsourcing motives*

Respondents were asked to provide information about the firm's motives behind outsourcing the activity that they identified as the most significant one being outsourced. As shown in Figure 5.3, the majority of respondents reported engaging in outsourcing in an attempt to either achieve cost savings (60% of preferences) or to free time so as focus on their core competence

(56.2% of preferences). The quality enhancement motive was the third compelling reason for engaging in outsourcing with a 42.3% preference rate. This was followed respectively by access to skilled personnel (36.5%) and access to technology (22%). Overall, other motives mentioned, only accounted for 5.8%.

Figure 5.3: Outsourcing motives as highlighted by respondents

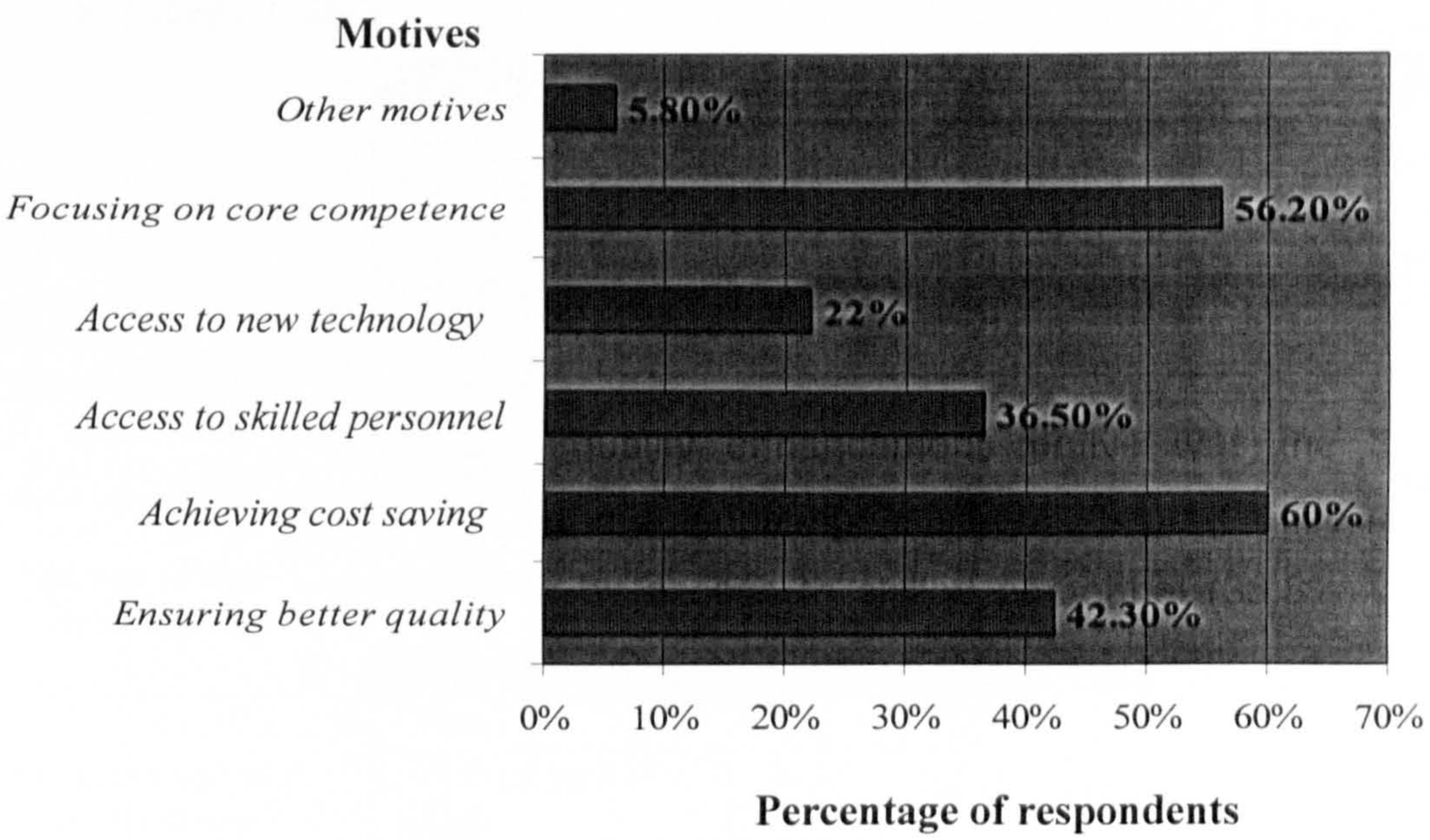


Table 5.17 presents a cross-tabulation between industry type and outsourcing motives. The table reveals that while the quality enhancement motive was, to a certain extent, evenly present in all four industries, the cost cutting rationale was more pronounced among hotel and telecommunication industries. The access to new technology motive was particularly less pronounced in the banking and finance industry. Freeing time to focus on core competences was particularly important in the banking and finance industry. The latter observation is supported empirically by the Chi-Square test, which shows significant association between the type of industry and the outsourcing

motive of focusing on core competences (Chi-square = 8.886; df=3; sig = 0.031).

Table 5.17: Cross-tabulation – Industry type vs. outsourcing motives

		IT	Tel	Hotel	Banking & Finance	Total
Ensuring better quality	Count	18	12	14	14	58
	Adjusted count by weight	18	16.5	17.5	17.5	69.5
	% of adjusted	26%	24%	25%	25%	100%
Achieving cost saving	Count	18	20	23	21	82
	Adjusted count by weight	18	27.6	28.7	23.3	97.6
	% of adjusted	18.4%	28.3%	29.4%	23.9%	100%
Access to skilled personnel	Count	15	10	10	15	50
	Adjusted count by weight	15	13.8	12.5	16.7	58
	% of adjusted	25.9%	23.8%	21.5%	28.8%	100%
Access to new technology	Count	9	8	10	3	30
	Adjusted count by weight	9	11	12.5	3.5	36
	% of adjusted	25%	30.5%	34.5%	10%	100%
Focusing on core competence	Count	16	22	18	21	77
	Adjusted count by weight	16	30.3	22.5	23.3	92.1
	% of adjusted	25%	23.4%	22.2%	29.4%	100%
Other motives	Count	5	0	1	2	8
	Adjusted count by weight	5	0	1.4	2.2	8.6
	% of adjusted	58.1%	0%	16.3%	25.6%	100%

An additional cross-tabulation between firm size and outsourcing motives (see Table 5.18) reveals that the access to skilled personnel motive was particularly pronounced among small firms. Cost savings and freeing time to focus on core competences were the highest motives among all firms across all sizes.

Table 5.18: Cross-tabulation – Firm size vs. outsourcing motives

		Small	Medium	Large	Total
Ensuring better quality	Count	28	16	14	58
	Adjusted count by weight	28	20	25	73
	% of adjusted	38%	28%	34%	100%
Achieving cost saving	Count	33	30	19	82
	Adjusted count by weight	33	37	34	104
	% of adjusted	32%	35%	33%	100%
Access to skilled personnel	Count	29	14	7	50
	Adjusted count by weight	29	17	13	59
	% of adjusted	**49%**	29%	22%	100%
Access to new technology	Count	11	10	9	30
	Adjusted count by weight	11	12	16	39
	% of adjusted	28%	31%	41%	100%
Focusing on core competence	Count	35	24	18	77
	Adjusted count by weight	35	30	33	98
	% of adjusted	36%	31%	33%	100%
Other motives	Count	2	5	1	8
	Adjusted count by weight	2	6	2	10
	% of adjusted	20%	60%	20%	100%

5.8 Descriptive statistics in relation to key variables

This section presents a number of descriptive statistics in relation to the key variables of this study, namely: (i) Buyers' (outsourcing users) asset specificity; (ii) Suppliers' (outsourcing providers) asset specificity; (iii) outsourcing performance; and iv) collaborative ties (relational exchange between outsourcing buyers and suppliers). In so doing, descriptive statistics the mean value, the skewness, and kurtosis in relation to every item

measuring any of the variables will be discussed. The results from the investigation of these statistics will be examined in an attempt to extract some useful implications. Although, few relationships will be explored, these will rely on simple comparisons of the mean scores. A more rigorous analysis will be carried out in the following chapter (chapter six).

5.8.1 Buyers' asset specificity

Buyers' asset specificity was measured using six dimensions. These include human asset specificity, physical asset specificity, dedicated asset specificity, temporal asset specificity, procedural asset specificity, and brand capital. All dimensions were assessed using a seven-point Likert scale.

5.8.1.1 Buyers' human asset specificity

Buyers' human asset specificity was measured by three items. Respondents provided relatively low scores in all items (mean scores ranged from 1.817 to 2.576), suggesting low human asset specificity in the buyers side. As for the normality of distribution, while the 2nd and 3rd items are relatively normally distributed, the 1st item seems to be positively skewed and relatively peaked (see Table 5.19).

Table 5.19: Responses on buyers' human asset specificity

Items	Mean	Skewness	Kurtosis
hr1b: Your company has recruited additional staff for the sole purpose of managing the outsourcing relationship.	1.817	2.004	2.835
hr2b: Your company has acquired new knowledge in order to adapt to the specific technological norms of your supplier.	2.576	.795	-.589
hr3b: Your company has invested considerably in the training of personnel for the purpose of the relationship with your supplier.	2.394	1.039	-.180

Looking at the mean of the total buyers' human asset specificity across, both, industries and firm size, we can note no significant difference, with all the scores being less than 3 (see Table 5.20). The ANOVA test confirms the non-existence of any significant differences with the asymptotic significance in relation to firm size and industry type being respectively 0.158 and 0.522.

Table 5.20: Total buyers' human asset specificity

	Industry				Firm size		
	Hotel	IT	B & F	Tele	Small	Medium	Large
Mean	1.94	2.46	2.28	2.29	2.21	2.04	2.67
ANOVA Asymptotic Significance	0.522				0.158		

5.8.1.2 Buyers' physical asset specificity

Buyers' physical asset specificity was measured by two items. Respondents provided very low scores in both items (1.372 and 1.598), suggesting very low physical asset specificity in the buyers side. As for the normality of distribution, both items were positively skewed and too peaked (see Table 5.21).

Table 5.21: Responses on buyers' physical asset specificity

Items	Mean	Skewness	Kurtosis
Ph1b: Your company has invested in highly specialised equipment for the sole purpose of dealing with this supplier	1.598	2.424	5.747
ph2b: A significant amount of your company's equipment would need to be scrapped should your outsourcing relationship with this supplier cease.	1.372	3.607	13.700

Looking at the mean of the total buyer's physical asset specificity across, both, industries and firm size, we can note no significant difference with all the

scores being less than 2 (see Table 5.22). The ANOVA test confirmed the non-existence of any significant differences (the statistical significance in relation to firm size and industry type was respectively .204 and .089). The low scores in physical asset specificity could be explained by the fact that all targeted industries are service-related and, by their nature, they are unlikely to require investment in physical assets at least at the outsourcing level. It should be noted, however, that the skewness and kurtosis in relation to the second item (ph2b) are on the high side. The significant difference by industry ($p = 0.089$) perhaps indicate the fact that typical outsourcing relationships in some industries (e.g. hotels and IT) could be more associated with higher physical asset specific investments than in other industries (e.g. Banking and telecommunication).

Table 5.22: Total buyers' physical asset specificity

	Industry				Firm size		
	Hotel	IT	B & F	Tele	Small	Medium	Large
Mean	1.50	1.80	1.22	1.36	1.30	1.61	1.62
ANOVA Asymptotic Significance	0.089				0.204		

5.8.1.3 Buyers' dedicated asset specificity

Buyers' dedicated asset specificity was measured by three items. Respondents provided relatively low scores in all items (mean scores ranged from 1.744 to 2.102), suggesting low dedicated asset specificity in the buyers side. As for the normality of distribution, the three items were reasonably normally distributed (see Table 5.23).

Table 5.23: Responses on buyers' dedicated asset specificity

Items	Mean	Skewness	Kurtosis
dedi1b: For the purpose of the outsourcing relationship, your company has made additional investments that would result in excess capacity in the event of contract termination.	1.744	1.653	1.686
dedi2b: For the purpose of the outsourcing relationship, your company has made additional investments in quality control facilities which are likely to result in excess capacity in the event of contract termination.	1.883	1.570	1.404
dedi3b: In order to cope with the 'weight' of the relationship with this supplier, your company has made additional investments in communication facilities that are likely to result in excess capacity in the event of contract termination.	2.102	1.249	.311

Looking at the mean of the total buyers' dedicated asset specificity across, both, industries and firm size, we can note no significant difference in relation to industry type with scores ranging from 1.71 to 2.08 and the ANOVA statistical significance being 0.617. Although there seems to be some difference across firm size, the spread of scores was not high (from 1.67 to 2.38) (see Table 5.24).

Table 5.24: Total buyers' dedicated asset specificity

	Industry				Firm size		
	Hotel	IT	B & F	Tele	Small	Medium	Large
Mean	1.92	2.08	1.71	1.89	1.67	1.87	2.38
ANOVA Asymptotic Significance	0.617				0.025		

5.8.1.4 Buyers' procedural asset specificity

Buyers' procedural asset specificity was measured by four items. Respondents provided low to neutral level of scores (mean scores ranged from 2.715 to 4.299), suggesting low to neutral level of procedural asset specificity in the buyers side. As for the normality of distribution, the four items were reasonably normally distributed (see Table 5.25).

Table 5.25: Responses on buyers' procedural asset specificity

Items	Mean	Skewness	Kurtosis
Procd1b: Your company has established procedures and routines tailored to the relationship with your supplier	3.832	-.167	-1.295
Procd2b: The outsourcing relationship has entailed no changes for your employees.	4.299	-.201	-1.427
Procd3b: The outsourcing relationship has entailed significant changes for the overall operations of your company	3.175	.103	-1.244
Procd4b: The outsourcing relationship has entailed significant restructuring and downsizing (e.g. redundancies) in your company.	2.715	.596	-1.004

Looking at the mean of the total buyers' procedural asset specificity across, both, industries and firm size, we can note no significant difference with all the scores being around 3.5 (see Table 5.26). The ANOVA test confirmed the non-existence of any significant differences (the statistical significance in relation to firm size and industry type was, respectively, .922 and .686).

Table 5.26: Total buyers' procedural asset specificity

	Industry				Firm size		
	Hotel	IT	B & F	Tele	Small	Medium	Large
Mean	3.60	3.68	3.38	3.31	3.49	3.56	3.43
ANOVA Asymptotic Significance	0.686				0.922		

5.8.1.5 Buyers' temporal asset specificity

Buyers' temporal asset specificity was measured by four items. Respondents provided relatively high level scores in most items, suggesting the general existence of high temporal asset specificity among the outsourcing relationships referred to by the majority of respondents. Both the skewness and kurtosis values indicated, generally, normal distribution in all items (see Table 5.27).

Table 5.27: Responses on buyers' temporal asset specificity

Items	Mean	Skewness	Kurtosis
Temp1b: The product or service provided by your supplier requires timely delivery.	5.394	-.989	-.211
Temp2b: In the relationship with your supplier, precise scheduling is very important.	5.233	-.918	-.094
Temp3b: Punctual delivery from your supplier is crucial; hence any delay will result in a significant cost to your company (e.g. loss of clients).	4.773	-.528	-.991
Temp4b: In the event of delay from your supplier, your company can easily get the same product / service from another supplier.	4.927	-.537	-.988

Examining the mean of the total buyers' temporal asset specificity across, both, industries and firm size, we can note no significant difference (see Table 5.28). The ANOVA test confirmed the non-existence of any significant differences (the statistical significance in relation to firm size and industry type was, respectively, 0.756 and 0.803).

Table 5.28: Total buyers' temporal asset specificity

	Industry				Firm size		
	Hotel	IT	B & F	Tele	Small	Medium	Large
Mean	4.914	5.198	5.208	4.956	4.97	5.20	5.10
ANOVA Asymptotic Significance	0.803				0.756		

5.8.1.6 Buyers' brand name capital

Buyers' brand name capital was measured by three items. Respondents provided relatively high scores (mean scores ranged from 4.912 to 5.642), suggesting medium to high level reputation investment from buyers. Scores on the three items were quiet normally distributed (see Table 5.29).

Table 5.29: Responses on buyer's brand capital

Items	Mean	Skewness	Kurtosis
Brand1b: In the industry, in which your company operates, you cannot afford receiving a low quality product or service from your supplier since this will negatively affect your own reputation.	5.642	-1.294	.541
Brand2b: Given the importance of your company in the market, your supplier must do its utmost to maintain the quality of service provided to your company.	4.912	-.455	-6.91
Brand3b: Any underperformance from your supplier will result in a highly negative effect on your company's reputation.	5.140	-.795	-.657

Looking at the mean of the total buyers' brand asset specificity, we can see no significant difference across firm sizes and slight differences in relation to industry type with the hotel industry counting a particularly high mean score (see Table 5.30). The ANOVA test confirmed the non-existence of any

significant differences with regard to firm size (the asymptotic significance being 0.534).

Table 5.30: Total buyers' brand capital

	Industry				Firm size		
	Hotel	IT	B & F	Tele	Small	Medium	Large
Mean	5.87	4.99	4.99	5.14	5.08	5.41	5.21
ANOVA Asymptotic Significance	0.047				0.534		

5.8.1.7 Distilled comments concerning buyers' asset specificity

Generally, scores in relation to all dimensions were normally distributed with the exception of those related to physical asset specificity, which showed poor normality. While both temporal asset specificity and brand capital contained neutral to high mean scores, human, physical, and dedicated asset specificity were predominantly less pronounced. A particular low mean score in relation to the physical asset specificity dimension together with relatively high level of skewness and kurtosis were noted. On the other hand, an almost neutral position in relation to procedural asset specificity was expressed by the majority of respondents.

5.8.2 Suppliers' asset specificity

Suppliers' asset specificity was measured using four dimensions. These include human asset specificity, physical asset specificity, dedicated asset specificity and site specificity. All dimensions were assessed using a seven-point Likert scale.

5.8.2.1 Suppliers' human asset specificity

Suppliers' human asset specificity was measured using four variables. Respondents provided almost neutral scores in all items (means scores ranging from 3.948 to 4.284), suggesting a rather neutral level of intangible investment made by the majority of suppliers in the outsourcing relationship. Given the skewness and kurtosis values, as shown in Table 5.31, the distribution of scores could be described as reasonably normal.

Table 5.31: Responses on suppliers' human asset specificity

Items	Mean	Skewness	Kurtosis
Hr1s: Your supplier has customized its own workflows and routines to the peculiarities of your company.	4.080	-.411	-.980
Hr2s: Your supplier faced initial difficulties in learning and adapting to your company's way of doing things.	3.948	-.184	-1.113
Hr3s: Your supplier has made a high degree of adaptation (e.g. via training) in order to provide the customized service required by your company.	3.985	-.118	-1.350
Hr4s: If you were to change your supplier, it would take a long time for a new supplier to serve as well as the current one.	4.284	-.237	-1.120

Although the ANOVA test showed no significant difference in mean scores across industry types and firm sizes, a further examination of the means reveals a slightly higher mean score in the baking and finance industry as compared to the other three industries (see Table 5.32).

Table 5.32: Total suppliers' human asset specificity

	Industry				Firm size		
	Hotel	IT	B & F	Tele	Small	Medium	Large
Mean	3.781	3.968	4.50	4.017	4.137	4.005	4.062
ANOVA Asymptotic Significance	0.216				0.901		

5.8.2.2 Suppliers' physical asset specificity

Suppliers' physical asset specificity was measured using two variables. Respondents provided low scores in all items (means scores ranging from 1.897 to 2.175), suggesting a rather low level of tangible investment made by the majority of suppliers in the outsourcing relationship. While the scores could, in general, be considered normally distributed, the 2nd item was positively skewed and relatively peaked (see Table 5.33).

Table 5.33: Responses on suppliers' physical asset specificity

Items	Mean	Skewness	Kurtosis
ph1s: Your supplier has invested in highly specialized equipment and facilities that were required for the purpose of the relationship with your company.	2.175	1.356	.755
ph2s: Your supplier has invested in highly specialized equipment and facilities that cannot easily be used in other applications outside the relationship with your company.	1.897	1.878	2.541

A further exploration of the means in relation to total tangible investment made by suppliers across industries and firm size, reveals relatively significant differences evidenced by a fairly higher score among large firms in general and those operating in the hotel industry in particular (see Table 5.34)

Table 5.34: Total suppliers' physical asset specificity

	Industry				Firm size		
	Hotel	IT	B & F	Tele	Small	Medium	Large
Mean	2.5	1.987	1.736	1.965	1.698	2.085	2.578
ANOVA Asymptotic Significance	0.022				0.007		

5.8.2.3 Suppliers' site specificity

Suppliers' site specificity was measured using four items. Respondents provided generally low scores (mean scores ranging from 1.773 to 2.175),

suggesting a rather low level of site specificity involving relocation of assets among suppliers (see Table 5.35).

Table 5.35: Responses on suppliers' site specificity

Items	Mean	Skewness	Kurtosis
Site1s: Your supplier has relocated the whole or part of its operations for the purpose of being nearer to your company since close proximity is important to the outsourcing relationship	2.175	1.356	.755
Site2s: Your supplier has relocated the whole or part of its operations for the sole purpose of the outsourcing relationship with your company and, hence, this relocation has little value outside this relationship.	1.897	1.878	2.541
Site3s: Your supplier has relocated some of its operations or assets in order to improve its services towards your company.	1.781	2.235	3.663
Site4s: The outsourcing relationship requires your supplier to be located near your company.	1.7737	2.247	3.601

Nevertheless, a closer look at the distribution of the mean in relation to the total suppliers' site specificity across industry types reveals a particularly higher mean value among hotels compared to other industries (a ratio higher than 1.7:1[4]) (see Table 5.36). This result seems to echo Lamminmaki's (2005) findings which showed site specificity as a dimension particularly pertinent among firms operating in the hotel industry. In addition, a higher level of mean could also be noted among large firms compared to smaller ones. Such differences among means across firm size and industry types could explain the relatively high values of skewness and kurtosis and, hence, elucidate on the reason behind such low level of normality.

[4] This figure is obtained by dividing the hotel industry mean by the second largest mean among the other three industries (3.21/1.843 = 1.741)

Table 5.36: Total suppliers' site specificity

	Industry				Firm size		
	Hotel	IT	B & F	Tele	Small	Medium	Large
Mean	3.210	1.843	1.430	1.344	1.517	2.122	2.476
ANOVA Asymptotic Significance	0.000				0.002		

5.8.2.4 Suppliers' dedicated asset specificity

Suppliers' dedicated asset specificity was measured using five items. Respondents generally provided relatively low to neutral scores (mean scores ranging from 2.642 to 3.619), suggesting a low to medium level of investments in dedicated assets (see Table 5.37).

Table 5.37: Responses on suppliers' dedicated asset specificity

Items	Mean	Skewness	Kurtosis
Dedi1s: Your supplier has made extra investments in order to expand its production capacity and to be able to meet your needs.	2.664	.722	-.766
Dedi2s: Your supplier has expanded its production capacity in the hope of a long-term relationship with your company.	2.729	.699	-1.018
Dedi3s: Your supplier's sales to your company represent an important share of your supplier's total sales.	3.036	.553	-.725
Dedi4s: Your supplier could easily re-sell extra output or make use of additional capacity in other applications outside the outsourcing relationship with your company.	3.619	.348	-.696
Dedi5s: Should your outsourcing relationship cease, your supplier would be left with substrantial unsold output or excess capacity (e.g. extra staff).	2.642	.797	-.820

However, a closer look at the distribution of means across firm sizes in relation to the suppliers' total asset specificity reveals a particularly higher score among large firms as compared to smaller ones (see Table 5.38). The skewness and kurtosis values indicate that all the scores in all items are broadly normally distributed.

Table 5.38: Total suppliers' dedicated asset specificity

	Industry				Firm size		
	Hotel	IT	B&F	Tele	Small	Medium	Large
Mean	3.235	3.010	2.842	2.631	2.309	3.096	3.847
ANOVA Asymptotic Significance	0.381				0.000		

5.8.2.4 Distilled comments concerning suppliers' asset specificity

Generally, all scores in relation to all dimensions were normally distributed with the exception of those related to physical and site asset specificity, which were relatively peaked among respondents operating in the hotel industry. The association of the site asset specificity dimension with hotel industries was already noted in previous empirical studies (see for example Lamminmaki, 2005). While both dedicated and human asset specificity dimensions contained medium mean scores, physical and site asset specificity were notably less pronounced, displaying rather low mean scores.

5.8.3 Outsourcing performance

As outlined in the methodology chapter (see section 4.6.2.2), outsourcing performance was measured using two dimensions, namely: (i) the overall satisfaction of buyers (outsourcing users); and (ii) the extent of realisation of outsourcing objectives. The two dimensions were assessed using a seven-point Likert scale.

5.8.3.1 The overall satisfaction of buyers

The overall satisfaction of buyers was measured using four items. Respondents provided relatively high scores (mean scores ranging from 4.277 to 5.335), projecting, in general, a fairly high overall satisfaction. The scores were, in the main, normally distributed (see Table 5.39).

Table 5.39: Responses on the overall satisfaction of buyers dimension

Items	Mean	Skewness	Kurtosis
Satis1b: Your company is very satisfied with the overall benefits obtained from outsourcing this activity.	5.503	-1.141	1.190
Satis2b: Your company is very satisfied with the quality of the service received in terms of consistency, timeliness and accuracy.	5.335	-1.277	1.340
Satis3b: Your company is very satisfied with this supplier's responsiveness to problems or queries.	5.335	-1.002	.884
Satis4b: The service level received from this supplier has exceeded your company's expectations.	4.277	-.508	-.165

Table 5.40: Total buyers' overall satisfaction

	Industry				Firm size		
	Hotel	IT	B&F	Tele	Small	Medium	Large
Mean	5.343	4.962	5.041	5.155	5.181	5.079	5.039
ANOVA Asymptotic Significance	0.564				0.838		

Looking at the means of the total buyers' overall satisfaction across industry types and firm sizes, we can note no statistically significant differences with all scores being around 5 (the asymptotic significance value for industry type and firm size was respectively 0.564 and 0.838) (see Table 5.40).

In addition, looking at the Pearson correlation matrix in relation to the four items measuring the overall satisfaction of outsourcing buyers (see appendix 5.6), it can be noted that all items were significantly correlated at the 0.01 level, suggesting convergence among the items in question.

5.8.3.2 Realisation of outsourcing objectives

The extent of realisation of outsourcing performance was measured by seven items. Respondents generally indicated a neutral to high extent of realisation of outsourcing objectives (mean scores ranging from 4.044 to 5.554). Scores were reasonably distributed (see Table 5.41).

Table 5.41: Responses on the realisation of outsourcing objectives

Items	Mean	Skewness	Kurtosis
Objec1b: Outsourcing the activity of reference has allowed your company to concentrate own resources on (e.g. staff) on core activities.	5.554	-1.552	2.543
Objec2b: By outsourcing the activity, your company has benefited from higher quality.	4.948	-.864	1.169
Objec3b: By outsourcing the activity, your company – via your supplier – has benefited from better access to skilled personnel.	5.043	-.891	.414
Objec4b: By outsourcing the activity, your company has benefited from greater scale economies achievable by your supplier.	5.000	-1.041	.752
Objec5b: By outsourcing the activity, your company has removed the need to invest in certain equipment (now under the governance of your supplier) and reduced the risk of technological obsolescence.	4.044	.048	-.960
Object6b: Your company has NOT achieved the target level of cost savings expected by outsourcing this activity.	5.117	-.721	-.110
Object7b: Overall, the objectives set by your company in relation to the outsourcing project have been met.	5.510	-.949	.823

Table 5.42: Total buyers' realisation of outsourcing objectives

	Industry				Firm size		
	Hotel	IT	B&F	Tele	Small	Medium	Large
Mean	5.200	4.926	4.984	5.049	5.022	4.963	5.147
ANOVA Asymptotic significance	0.641				0.683		

Looking at the means of the total buyers' overall satisfaction across industry types and firm sizes, we can note no significant differences with all scores being around 5 (The asymptotic significance value for industry type and firm size was respectively 0.641 and 0.683) (see Table 5.42).

Nevertheless, looking at the Pearson correlation matrix in relation to the seven items measuring buyers' realisation of outsourcing objectives (appendix 5.7), it can be noted that although most items were significantly positively correlated at the 0.01 level, both 'Objec4' and 'Objec5' items were either poorly correlated or even negatively correlated vis-à-vis all other items. Statistically, the poor convergence of these two items (object4 & objec5) vis-à-vis the rest of items could be an indication that they are not measuring the same dimension. Consequently, both 'Objec4' and 'Objec5' might have a negative effect on the convergent validity of the realisation of objective construct. Further attention should, hence, be directed towards these two items during the factor analysis stage.

5.8.4 Collaborative ties between buyers and suppliers

As outlined in chapter four (see section 4.6.2.2), the collaborative ties construct was measured using seven items. Respondents provided relatively high scores in all items (mean scores ranged from 4.781 to 6.014), suggesting generally high collaborative ties between buyers and suppliers. All items were reasonably normally distributed (see Table 5.43).

Table 5.43: Responses across items in relation to the collaborative ties variable

Items	Mean	Skewness	Kurtosis
collab1: Your company and the supplier have an extremely collaborative relationship.	5.328	-.812	.837
collab2: Your company and the supplier share both short- and long-term goals.	4.861	-.620	.115
collab3: No major disputes have so far taken place between your company and this supplier.	5.146	-.785	-.543
collab4: When your company has queries in relation to the service or product provided, the supplier's employees promptly respond with accurate information.	5.328	-.884	1.048
collab5R: Your company and the supplier do NOT generally keep each other's promises.	6.014	-1.461	2.493
collab6: Your supplier is always willing to provide assistance to your company.	5.459	-1.061	1.221
collab7R: Your company would be inclined to switch to an alternative supplier if the latter could provide a service comparable to the one offered by the current supplier at a slightly lower price.	4.781	-.505	-.890

5.9 Factor analysis

Factor analysis is employed in this research in order to extract a valid reduced number of factors. This process will enable the author to develop a reliable measurement instrument through which the research results can be assessed. Indeed, as highlighted by Hair *et al.* (1998, p. 90), factor analysis *"derives underlying dimensions that, when interpreted and understood, describe the data in a much smaller number of concepts than the original items"*. The literature distinguishes between two different types of factor analysis, *exploratory* and *confirmatory* factor analysis. While the former is often employed in the early-stage of research to explore the inter-relationships among a set of variables, the latter is normally used to confirm theories in

relation to the structure underlying a set of variables (Pallant, 2001). Although the two are not mutually exclusive, for this research, the exploratory factor analysis was judged to be sufficient and appropriate due to the fact that this research counts among the very rare empirical works trying to measure asset specificity from the side of both buyers and suppliers. The novelty of the research led to the choice of exploratory methods so as to fulfil the need to derive factors from the data.

5.9.1 Suitability of the data for factor analysis

The appropriateness of employing factor analysis on any set of data depends generally on two criteria, these being the sample size and the strength of the relationship between variables (Pallant, 2001).

As far as the sample size is concerned, while it is commonly agreed that sample sizes should be quite large so that correlations are reliably estimated, this does not eliminate the possibility of carrying out factor analysis with relatively small samples (Tabachnick and Fidell, 2007). Indeed, as more research has been done on the topic, the sample size requirements suggested by researchers have been dropping over the years (Stevens, 1996). Guadagnoli and Velicer (1988) argue that it is not necessary to have large sample sizes as long as solutions contain several high loading marker variables. Stretching this argument further, some authors (for example Sapnas and Zeller, 2002) even conclude that under certain circumstances, 100 or even 50 cases could be sufficient. Therefore, armed with a sample size of 137 cases, this research could be considered a good candidate for suitably carrying out factor analysis. This could further be substantiated by the fact that our *ratio of subjects to cases* even exceeds what is recommended by authors such as Guadagnoli and Velicer (1988) and Hinkin (1998) both consider a 6 to 1 ratio as an adequate figure for achieving stable factor solutions[5].

[5] The expected number of factors in this research is 13 (4 suppliers' asset specificity + 6 buyers' asset specificity + 2 outsourcing performance + 1 collaborative ties). 13* 6 = 78 < 137.

Nevertheless, since 137 cases could be regarded as relatively low as compared to what is generally recommended by some authors (e.g. Comrey and Lee, 1992), this research will follow a conservative and strict approach in the extraction of factors by setting a high minimum level of loading so as to protect the reliability of our correlations.

As for the strength of the relationship criteria, Hair *et al.* (1998) suggest assessing the 'factorability' of the data using the Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy.

Table 5.44: Assessing the strength of the relationship

	KMO	Bartlett sphericity test
Buyers' asset specificity	.765	(F=1358.75, df=172, *p*=0.000)
Suppliers' asset specificity	.773	(F=1071.258, df=78, *p*=0.000)
Outsourcing Performance	.901	(F=973.966, df=78, *p*=0.000)
Collaborative ties	.847	(F=386.550, df= 21, *p*=0.000)

As can be seen from the above table, the KMO tests exceeded the required 0.70 (some authors such as Tabachnick and Fidell (2007) recommend even 0.60 as the minimum KMO index value for a good factor analysis)[6] while the Bartlett sphericity tests were significant at the 0.001 level. Hence, the item pool from the response data was amenable to factor analysis.

5.9.2 Extracting factors

Exploratory principle components factor analysis in relation to buyers' asset specificity, suppliers' asset specificity, outsourcing performance, and collaborative ties was carried out so as to extract factors with eigenvalues of one or greater (Nunnally, 1978; Straub, 1989). Catell's Scree test was, thereafter, used to further verify the number of factors to be included in the final solution (Catell, 1966). Once the number of factors had been determined,

[6] Other authors (e.g. George and Mallery, 1995) suggest that even a KMO index as low as 0.50 could be adequate.

factor rotation was conducted. Generally, there are two main types of rotation methods, namely: (i) orthogonal rotation; and (ii) oblique rotation. The former has been chosen to be used in this research for its ease of interpretation and usage compared to the latter (Tabachnick and Fidell, 2007). Besides, as highlighted by Hair *et al.* (1998, p. 109), compared to orthogonal rotations, oblique rotation methods *"are not as well developed and are still subject to considerable controversy"*. Among the different orthogonal rotations, the Varimax technique was specifically selected as it is the most commonly used orthogonal approach (Pallant, 2001). The rotated factor solutions were judged on simplicity (Kim and Mueller, 1978, p. 29), interpretability in relation to the literature (Kachigan, 1982), and the extent of factor loading (Hair *et al.*, 1998).

5.9.2.1 Buyers' asset specificity

As can be seen from the total variance table (Table 5.45), the first six components had eigenvalues greater than 1, explaining together a total of 73.5% of the variance.

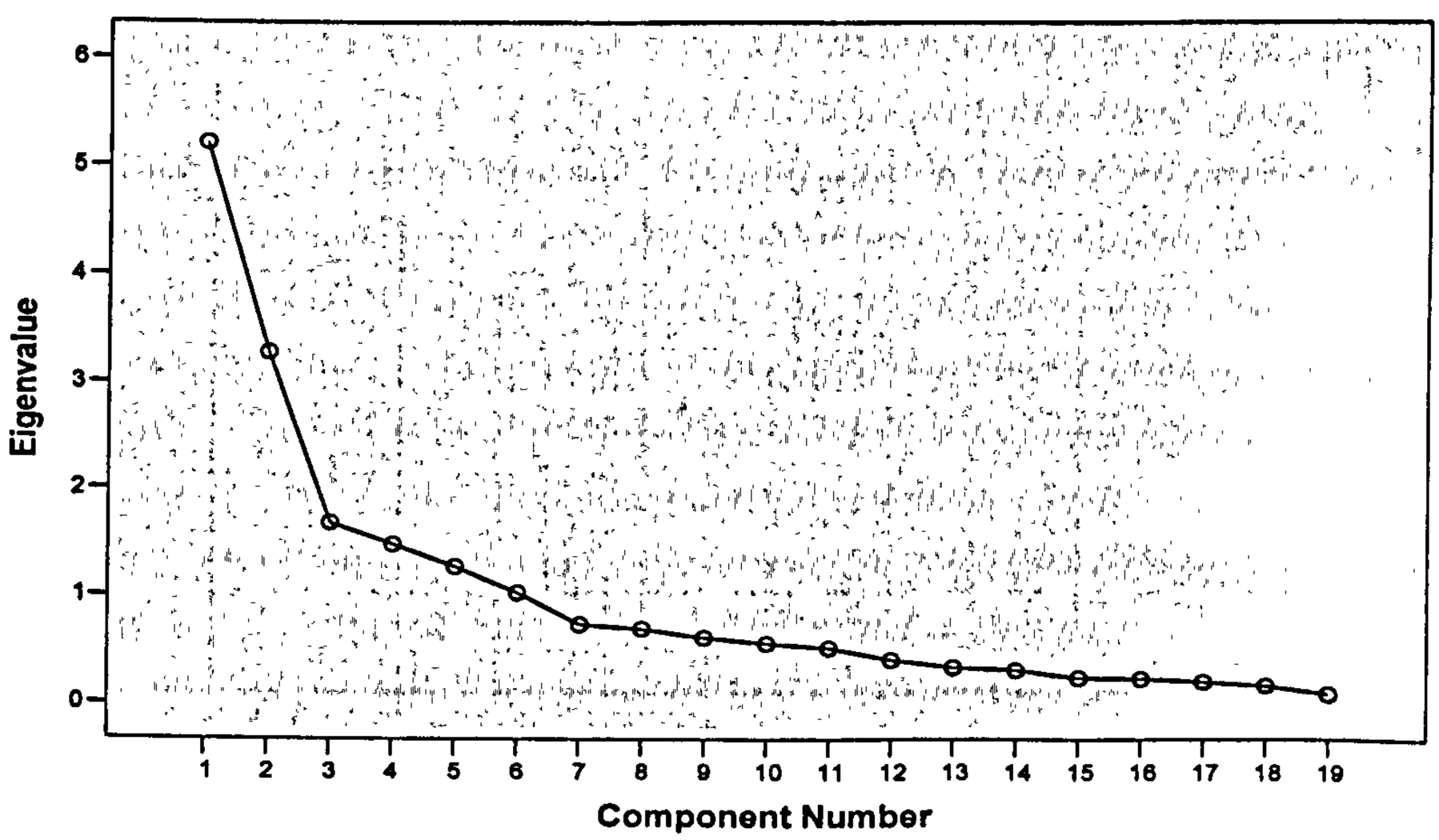
Table 5.45: The total variance table in relation to buyers' asset specificity construct

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.219	27.467	27.467	5.219	27.467	27.467
2	3.286	17.297	44.764	3.286	17.297	44.764
3	1.682	8.855	53.619	1.682	8.855	53.619
4	1.478	7.777	61.396	1.478	7.777	61.396
5	1.272	6.695	68.091	1.272	6.695	68.091
6	1.028	5.409	73.501	1.028	5.409	73.501
7	.737	3.877	77.378			
8	.696	3.662	81.039			
9	.612	3.220	84.259			
10	.556	2.928	87.188			
11	.511	2.687	89.875			
12	.399	2.102	91.977			
13	.326	1.716	93.693			
14	.304	1.598	95.291			
15	.233	1.226	96.517			
16	.225	1.182	97.698			
17	.195	1.025	98.723			
18	.161	.846	99.570			
19	.082	.430	100.000			

Extraction Method: Principal Component Analysis.

Figure 5.4: Scree plot in relation to buyers' asset specificity construct



As demonstrated in Figure 5.4, the Catell's test shows a clear break between the third and fourth factor and an additional second little break after the fifth component. In making the decision to either retain 5 or 6 factors, the author considered the fact that physical asset specificity was responsible for the majority of outliers (as discussed in section 5.5.2), showed poor normal distribution, and had particularly low mean scores (see section 5.8.1.2); which could lead to the conclusion that this dimension might not be a good candidate especially if we take into account the fact that all the targeted industries were service-related (entailing little involvement of physical assets). Hence, the decision was taken to retain five instead of six factors.

Having conducted the Varimax rotation on the original 19 items, factors were statistically formed on the basis of item factor loadings (see Table 5.46).

Table 5.46: Buyers' Rotated Component Matrix(a) using Varimax technique

	Component				
	1	2	3	4	5
temp1b:The product or service provided by your supplier requires timely delivery.	.925				
temp2b:In the relationship with your supplier, precise scheduling is very important.	.907				
temp3b:Punctual delivery from your supplier is crucial; hence any delay will result in a significant cost to your company (e.g. loss of clients).	.828				
brand1b:In the industry in which your company operates, you cannot afford receiving a low quality product or service from your supplier since this will negatively affect your own reputation.	.636			.210	.564
brand2b:Given the importance of your company in the market, your supplier must do its utmost to maintain the quality of service provided to your company.	.539				.340
temp4bR:In the event of delay from your supplier, your company can easily get the same product / service from another supplier.	.420		-.205	.203	
dedi2b:For the purpose of the outsourcing relationship, your company has made additional investments in quality control facilities which are likely to result in excess capacity in the event of contract termination.		.850	.227		
dedi3b:In order to cope with the 'weight' of the relationship with this supplier, your company has made additional investments in communication facilities that are likely to result in excess capacity in the event of contract termination.		.818			
dedi1b:For the purpose of the outsourcing relationship, your company has made additional investments that would result in excess capacity in the event of contract termination.		.803			
hr2b: Your company has acquired new knowledge in order to adapt to the specific technological norms of your supplier.			.844		
hr3b: Your company has invested considerably in the training of personnel for the purpose of the relationship with your supplier.			.837		
hr1b: Your company has recruited additional staff for the sole purpose of managing the outsourcing relationship.			.800		
procd3b:The outsourcing relationship has entailed significant changes for the overall operations of your company.				.835	
procd2bR:The outsourcing relationship has entailed NO changes for your employees.	.263		.237	.755	
procd4b:The outsourcing relationship has entailed significant restructuring and downsizing (e.g. redundancies) in your company.	-.203	.207		.681	
procd1b:Your company has established procedures and routines tailored to the relationship with your supplier.	.414		.227	.633	
brand3b: Any underperformance from your supplier will result in a highly negative effect on your company's reputation.	.390				.716
ph1b: Your company has invested in highly specialised equipment for the sole purpose of dealing with your supplier.	.253	.361	.432		-.536
ph2b:A significant amount of your company's equipment would need to be scrapped should your outsourcing relationship with this supplier cease.		.487			-.517

Note: Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 9 iterations.

Having examined in detail the rotated component matrix, four items were deleted. Both items measuring physical asset specificity (Ph1b and ph2b) were, as expected, poorly loaded and had to be dropped. In addition, while item "temp4bR" did not load significantly (.42), item "procd1b" loaded on more than one factor. These two items, therefore, were also dropped. The remaining 15 items constitute 5 stable factors representing buyers' asset specificity (see Table 5.47). These are labelled buyers' human asset specificity, buyers' temporal asset specificity, buyers' procedural asset specificity, buyers' dedicated asset specificity, and buyers' brand capital. Each item loaded significantly in their theoretically correct underlying factor.

Table 5.47: Factors representing buyers' asset specificity

Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
temp1b:The product or service provided by your supplier requires timely delivery.	.923			.240	
temp2b:In the relationship with your supplier, precise scheduling i very important.	.899			.280	
temp3b:Punctual delivery from your supplier is crucial; hence any delay will result in a significant cost to your company (e.g. loss of clients).	.832			.204	
hr3b: Your company has invested considerably in the training of personnel for the purpose of the relationship with your supplier.		.857			
hr2b: Your company has acquired new knowledge in order to ada to the specific technological norms of your supplier.		.848			
hr1b: Your company has recruited additional staff for the sole purpose of managing the outsourcing relationship.		.821			
dedi2b:For the purpose of the outsourcing relationship, your company has made additional investments in quality control facilities which are likely to result in excess capacity in the event c contract termination.		.246	.880		
dedi3b:In order to cope with the 'weight' of the relationship with th supplier, your company has made additional investments in communication facilities that are likely to result in excess capacity in the event of contract termination.			.829		
dedi1b:For the purpose of the outsourcing relationship, your company has made additional investments that would result in excess capacity in the event of contract termination.			.813		
brand3b: Any underperformance from your supplier will result in a highly negative effect on your company's reputation.				.873	
brand1b:In the industry in which your company operates, you cannot afford receiving a low quality product or service from your supplier since this will negatively affect your own reputation.	.392			.813	
brand2b:Given the importance of your company in the market, yo supplier must do its utmost to maintain the quality of service provided to your company.	.321			.640	
procd3b:The outsourcing relationship has entailed significant changes for the overall operations of your company.					.813
procd4b:The outsourcing relationship has entailed significant restructuring and downsizing (e.g. redundancies) in your company					.746
procd2bR:The outsourcing relationship has entailed NO changes for your employees.	.243	.251			.732

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

5.9.2.2 Suppliers' asset specificity

As can be seen from the total variance table (Table 5.48) and as theoretically expected, four components had eigenvalues greater than 1, explaining together a total of 70.5% of the variance. This was confirmed by the Catell's test (Scree plot as shown in Figure 5.5) which indicated a clear cut following the fourth component, leading to the decision to retain 4 factors (site, dedicated, human, and physical).

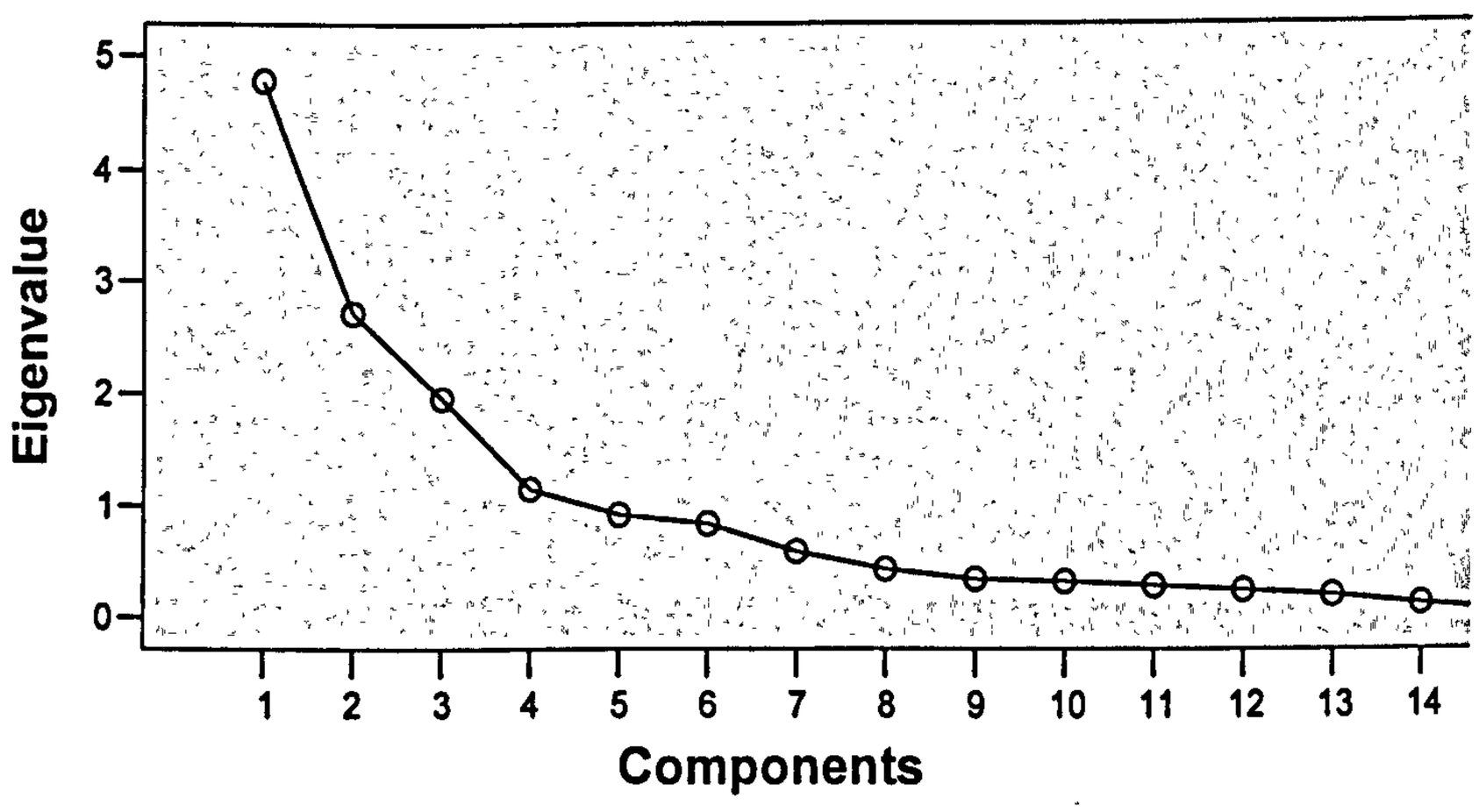
Table 5.48: Total variance in relation to suppliers' asset specificity

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.779	31.861	31.861	4.779	31.861	31.861	3.317	22.113	22.113
2	2.708	18.056	49.917	2.708	18.056	49.917	3.124	20.829	42.941
3	1.954	13.024	62.940	1.954	13.024	62.940	2.476	16.506	59.447
4	1.147	7.650	70.590	1.147	7.650	70.590	1.671	11.143	70.590
5	.919	6.125	76.716						
6	.839	5.591	82.307						
7	.590	3.932	86.239						
8	.432	2.880	89.119						
9	.347	2.311	91.430						
10	.327	2.183	93.613						
11	.290	1.935	95.547						
12	.255	1.702	97.249						
13	.213	1.419	98.668						
14	.136	.905	99.573						
15	.064	.427	100.000						

Extraction Method: Principal Component Analysis.

Figure 5.5: Scree plot in relation to suppliers' asset specificity construct



Having conducted the Varimax rotation on the original 15 items, factors were statistically formed on the basis of item factor loadings (see Table 5.49).

Table 5.49: Suppliers' rotated component Matrix(a) using Varimax Technique

Rotated Component Matrix[a]

	Component			
	1	2	3	4
site1s:Your supplier has relocated the whole or part of its operations for the purpose of being nearer to your company since close proximity is important to the outsourcing relationship.	.933			
site2s:Your supplier has relocated the whole or part of its operations for the sole purpose of the outsourcing relationship with your company and, hence, this relocation has little value outside this relationship.	.908			
site3sYour supplier has relocated some of its operations or assets in order to improve its services towards your company.	.850			
site4s:The outsourcing relationship requires your supplier to be located near your company.	.836			
dedi2s:Your supplier has expanded its production capacity in the hope of a long-term relationship with your company.		.902		
dedi1s:Your supplier has made extra investments in order to expand its production capacity and to be able to meet your needs.		.885		
dedi5s:Should your outsourcing relationship cease, your supplier would be left with substantial unsold output or excess capacity (e.g. extra staff).		.851		
dedi3s:Your supplier's sales to your company represent an important share of your supplier's total sales.		.750		.252
hr4s: If you were to change your supplier, it would take a long time for a new supplier to serve you as well as the current one.			.820	
hr1s:Your supplier has customised its own workflows and routines to the peculiarities of your company.			.799	
hr3s: Your supplier has made a high degree of adaptation (e.g. via training) in order to provide the customised service required by your company.			.746	
hr2s:Your supplier faced initial difficulties in learning and adapting to your company's way of doing things.			.699	
dedi4sR:Your supplier could easily re-sell extra output or make use of additional capacity in other applications outside the outsourcing relationship with your company.	.218		.238	
ph2s:Your supplier has invested in highly specialised equipment and facilities that cannot easily be used in other applications outside the relationship with your company.				.894
ph1s:Your supplier has invested in highly specialised equipment and facilities that were required for the purpose of the relationship with your company.		.318		.817

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

As can be seen from Table 5.49, item *'dedi4s'* displayed poor loading (highest loading being .238), did not discriminate between factor 1 and factor 3 and failed to load where it was theoretically supposed to (factor 2). This led to the

decision to drop the item in question. In addition, item 'ph2s' poorly discriminated between factor 4 and 2 (by also loading quite highly on factor 2 in addition to factor 4) and had to be dropped, leaving only a single item (ph1s) measuring the suppliers' physical asset specificity dimension. Taking into account that a single item is usually regarded as inadequately reliable to measure a given dimension or factor (De Vaus, 2002)[7] and given the fact that physical asset specificity had particularly low mean scores (see section 5.8.2.2) and that the targeted industries were service-related (entailing little involvement of physical assets), it was decided to drop item 'ph1s' in addition to item 'ph2s' (lowering the number of factors to be retained to 3 factors).

Having dropped item 'dedi4s', 'ph1s', and 'ph2s', the remaining 12 items constitute 3 factors representing suppliers' asset specificity (see Table 5.50). These are labeled suppliers' site specificity, suppliers' dedicated asset specificity, and suppliers' human asset specificity. Although some items may seem to be loading in more than one factor, the extent of their loadings in the non principle factors was quite low (less than .3 in all cases). All items loaded significantly in their expected underlying factor.

As such and given the dimensions obtained in relation to buyers' asset specificity, the main effect model that would be used in assessing the effect of asset specificity should incorporate eight different dimensions (five dimensions for buyers' asset specificity and three dimensions for suppliers' asset specificity).

[7] Single-item measures as opposed to multi-item measures are known to have almost certainly a strong yes-saying bias. Moreover, as argued by De Vaus (2002), multi-item indicators are the best way to create reliability.

Table 5.50: Factors representing supplier's asset specificity

Rotated Component Matrix[a]

	Component		
	1	2	3
site1s:Your supplier has relocated the whole or part of its operations for the purpose of being nearer to your company since close proximity is important to the outsourcing relationship.	.948		
site2s:Your supplier has relocated the whole or part of its operations for the sole purpose of the outsourcing relationship with your company and, hence, this relocation has little value outside this relationship.	.926		
site3sYour supplier has relocated some of its operations or assets in order to improve its services towards your company.	.845	.121	
site4s:The outsourcing relationship requires your supplier to be located near your company.	.838	.145	
dedi2s:Your supplier has expanded its production capacity in the hope of a long-term relationship with your company.	.159	.898	
dedi1s:Your supplier has made extra investments in order to expand its production capacity and to be able to meet your needs.	.153	.883	
dedi5s:Should your outsourcing relationship cease, your supplier would be left with substantial unsold output or excess capacity (e.g. extra staff).	.125	.870	
dedi3s:Your supplier's sales to your company represent an important share of your supplier's total sales.		.789	.167
hr4s: If you were to change your supplier, it would take a long time for a new supplier to serve you as well as the current one.			.824
hr1s:Your supplier has customised its own workflows and routines to the peculiarities of your company.	.101	.208	.802
hr3s: Your supplier has made a high degree of adaptation (e.g. via training) in order to provide the customised service required by your company.			.744
hr2s:Your supplier faced initial difficulties in learning and adapting to your company's way of doing things.			.704

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 4 iterations.

5.9.2.3 Outsourcing performance

As can be seen from the total variance table (Table 5.51) and as theoretically expected, two components had eigenvalues greater than unity, explaining together a total of 66.45% of the variance. This was confirmed by the Catell's test (Scree plot as shown in Figure 5.6) which indicated a clear cut following the second component, leading to the decision to retain 2 factors (overall satisfaction of buyers and realization of buyers' outsourcing objectives).

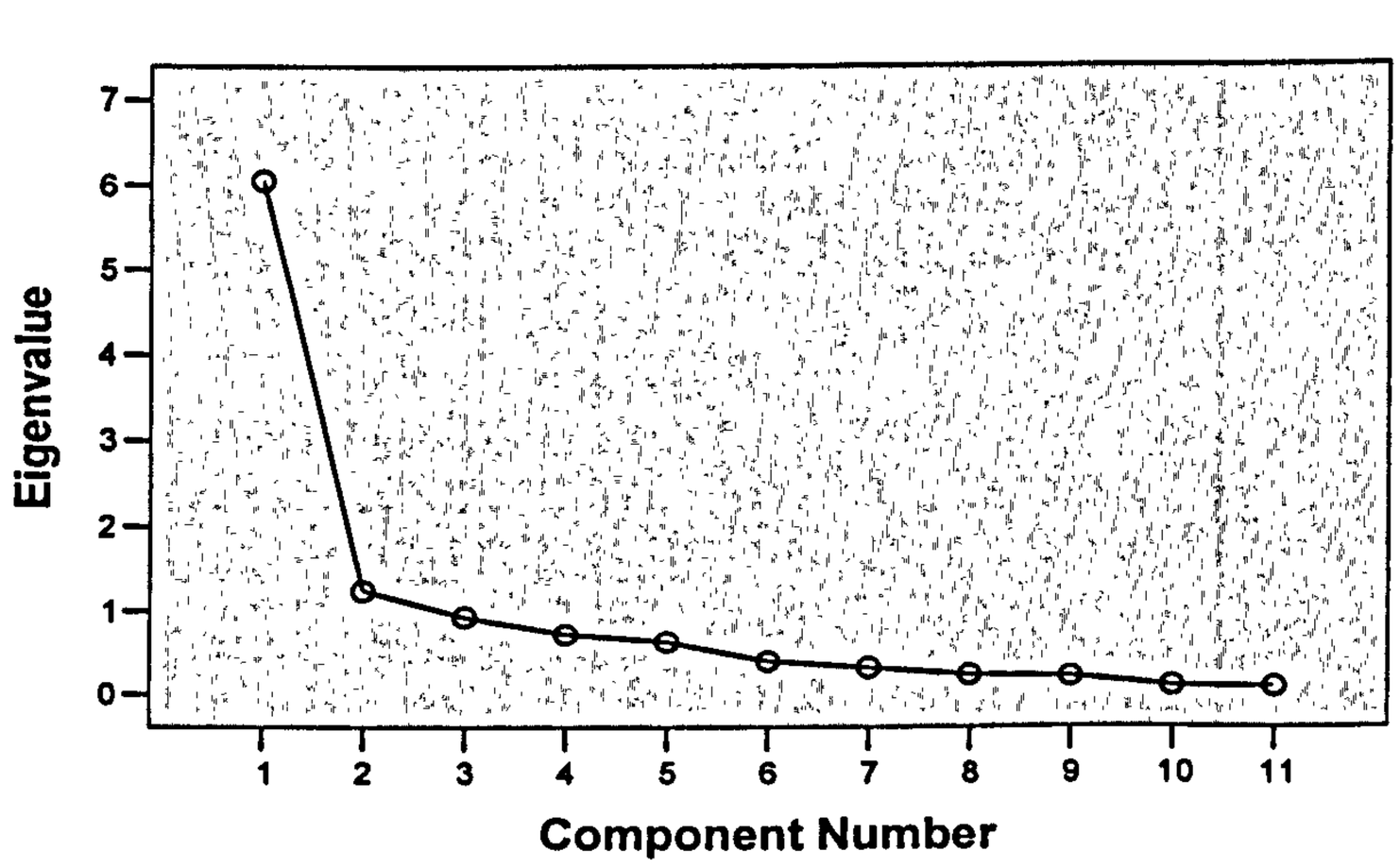
Table 5.51: Total variance table in relation to outsourcing performance construct

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.059	55.077	55.077	6.059	55.077	55.077
2	1.252	11.380	66.457	1.252	11.380	66.457
3	.938	8.531	74.988			
4	.729	6.624	81.612			
5	.640	5.815	87.427			
6	.405	3.684	91.111			
7	.322	2.925	94.036			
8	.236	2.143	96.179			
9	.215	1.954	98.133			
10	.109	.995	99.128			
11	.096	.872	100.000			

Extraction Method: Principal Component Analysis.

Figure 5.6: Scree plot in relation to outsourcing performance construct



Having conducted the Varimax rotation on the original 11 items, factors were statistically formed on the basis of item factor loadings (see Table 5.52).

Table 5.52: Outsourcing performance Varimax Rotated Component Matrix(a)

Component Matrix[a]

	Component	
	1	2
Satis2:You company is very satisfied with the quality of the service received in terms of consistency, timeliness and accuracy.	.904	
Satis3:Your company is very satisfied with this supplier's responsiveness to problems or queries.	.895	
Satis1:Your company is very satisfied with the overall benefits obtained from outsourcing this activity.	.886	
Objec7:Overall, the objectives set by your company in relation to the outsourcing project have been met.	.857	
Satis4:The service level received from this supplier has exceeded your company's expectations.	.847	-.111
Objec3:By outsourcing the activity your company - via your supplier - has benefited from better access to skilled personnel.	.782	.181
Objec2:By outsourcing the activity your company has benefited from higher quality.	.771	
Objec1:Outsourcing the activity of reference has allowed your company to concentrate own resources (e.g. staff) on core activities.	.731	.222
Objec6R:Your company has NOT achieved the target level of cost savings expected by outsourcing this activity.	.660	-.112
Objec4:By outsourcing the activity, your company has benefited from greater scale economies achievable by your supplier.		.846
Objec5:By outsourcing the activity, your company has removed the need to invest in certain equipment (now under the governance of your supplier) and reduced the risk of technological obsolescence.	-.150	.643

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Although initially effort was made to measure outsourcing performance using two dimensions (overall satisfaction and extent of realisation of outsourcing objectives), the varimax rotation (as shown in Table 5.52) revealed the loading of all items (except 2 items: objec4 and objec5) on a single factor (single dimension). This is confirmed by the Pearson correlation coefficient in relation to the averaged items of both the satisfaction and the realisation of objectives dimensions, which was significant at the 0.01 level (see Table 5.53).

Table 5.53: Correlation between the average of items measuring outsourcing satisfaction and those measuring realisation of outsourcing objectives.

Correlations

		Aver.Satis	Aver.Objec
Aver.Satis	Pearson Correlation	1	.668**
	Sig. (2-tailed)		.000
	N	137	137
Aver.Objec	Pearson Correlation	.668**	1
	Sig. (2-tailed)	.000	
	N	137	137

**. Correlation is significant at the 0.01 level (2-tailed).

This result can be explained by the fact that outsourcing buyers' satisfaction can itself be linked to the extent of realisation of outsourcing objectives.

However, a closer look at the correlation matrix among all items (in relation to both satisfaction and realisation of objectives) reveals that although most items measuring realisation of objectives were significantly correlated (at 0.01 level) with items measuring buyers' satisfaction, both 'objec4' and 'objec5' were poorly correlated with the rest of items (see appendix 5.8); which explains their isolated loading vis-à-vis other items (see Table 5.52). A priori, this result was somewhat expected especially given the fact that both items in question have not shown convergence even among other items measuring the realisation of objective dimension (see section 5.8.3.2). Hence, decision was taken to drop both of these items, leaving a unique factor representing outsourcing performance (see Table 5.54).

Table 5.54: Component matrix

Component Matrix[a]

	Component
	1
Satis2:You company is very satisfied with the quality of the service received in terms of consistency, timeliness and accuracy.	.906
Satis3:Your company is very satisfied with this supplier's responsiveness to problems or queries.	.896
Satis1:Your company is very satisfied with the overall benefits obtained from outsourcing this activity.	.888
Objec7:Overall, the objectives set by your company in relation to the outsourcing project have been met.	.856
Satis4:The service level received from this supplier has exceeded your company's expectations.	.848
Objec3:By outsourcing the activity your company - via your supplier - has benefited from better access to skilled personnel.	.782
Objec2:By outsourcing the activity your company has benefited from higher quality.	.772
Objec1:Outsourcing the activity of reference has allowed your company to concentrate own resources (e.g. staff) on core activities.	.728
Objec6R:Your company has NOT achieved the target level of cost savings expected by outsourcing this activity.	.660

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

The fact that the last two items 'objec4' and 'objec5' did not load on the same factor as the other items (see Table 5.52), perhaps echoes an emerging shift in outsourcing motives, similar to the one highlighted by Quinn and Hilmer (1995), and which is characterised by a more strategic-oriented motives that links satisfaction mainly to more strategic factors such as access to skilled personnel, greater focus on core activities, and obtaining higher quality (successively represented by 'objec3', 'objec1', and 'objec2').

In addition, outsourcing objectives such as the one articulated by 'objec4' (achieving greater economies of scale) are generally more sought by outsourcing suppliers rather than buyers. Indeed, as far as buyers are concerned, once outsourced, the cost of the activity in question will be guided

by the contract and, hence, the objective of achieving greater scale economies will be passed towards the supplier. This could also explain the divergence of 'objec4' vis-à-vis the rest of items.

5.9.2.4 Collaborative ties

As can be seen from the total variance table (Table 5.55) and, as theoretically expected, only the first component recorded an eigenvalue above 1 explaining 53.78% of the variance.

Table 5.55: Total variance table in relation to collaborative ties

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,765	53,786	53,786	3,765	53,786	53,786
2	,904	12,916	66,703			
3	,774	11,063	77,765			
4	,514	7,336	85,101			
5	,408	5,825	90,926			
6	,364	5,203	96,129			
7	,271	3,871	100,000			

Extraction Method: Principal Component Analysis.

Looking at the varimax rotation table (Table 5.56), all items showed a significant loading except item 'collab 7' which had a relatively low loading (.532).

Table 5.56: Varimax rotated component Matrix(a) in relation to collaborative ties

Component Matrix[a]

	Component
	1
collab6:Your supplier is always willing to provide assistance to your company.	,826
collab4:When your company has queries in relation to the service or product provided, the supplier's employees promptly respond with accurate information.	,793
collab1:Your company and the supplier have an extremely collaborative relationship.	,772
collab3:No major disputes have so far taken place between your company and this supplier.	,740
collab2:Your company and the supplier share both short- and long-term goals.	,731
collab5R:Your company and the supplier do NOT generally keep each other's promises.	,701
collab7R:Your company would be inclined to switch to an alternative supplier if the latter could provide a service comparable to the one offered by the current supplier at a slightly lower price.	,532

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Indeed, as can be seen from the correlation matrix (Table 5.57), the item in question showed particularly low correlation coefficients (less than .35 in all cases) vis-à-vis the other items, which explains its poor loading. For these reasons, the author decided to drop the 'collab7' item, leaving a total of six items measuring the collaborative ties construct and the loading of which ranges from .712 to .733 (see Table 5.58).

Table 5.57: Correlation matrix in relation to the various original items measuring collaborative ties

Correlation Matrix

		collab 1	collab 2	collab 3	collab 4	collab5 R	collab 6	collab 7
Correlation	collab1:Your company and the supplier have an extremely collaborative relationship.	1,000	,649	,460	,487	,334	,625	,347
	collab2:Your company and the supplier share both short- and long-term goals.	,649	1,000	,408	,452	,324	,543	,344
	collab3:No major disputes have so far taken place between your company and this supplier.	,460	,408	1,000	,561	,550	,456	,348
	collab4:When your company has queries in relation to the service or product provided, the supplier's employees promptly respond with accurate information.	,487	,452	,561	1,000	,570	,638	,274
	collab5R:Your company and the supplier do NOT generally keep each other's promises.	,334	,324	,550	,570	1,000	,535	,272
	collab6:Your supplier is always willing to provide assistance to your company.	,625	,543	,456	,638	,535	1,000	,347
	collab7R:Your company would be inclined to switch to an alternative supplier if the latter could provide a service comparable to the one offered by the current supplier at a slightly lower price.	,347	,344	,348	,274	,272	,347	1,000

Table 5.58: Retained items measuring the collaborative ties construct

Component Matrix[a]

	Component
	1
collab6:Your supplier is always willing to provide assistance to your company.	,833
collab4:When your company has queries in relation to the service or product provided, the supplier's employees promptly respond with accurate information.	,811
collab1:Your company and the supplier have an extremely collaborative relationship.	,775
collab3:No major disputes have so far taken place between your company and this supplier.	,741
collab2:Your company and the supplier share both short- and long-term goals.	,730
collab5R:Your company and the supplier do NOT generally keep each other's promises.	,712

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

5.10 Reliability and validity of the extracted factors

In addition to face and content validities, which were checked at an earlier stage prior to the collection of the data (see section 4.6.4, chapter 4), both construct validity and reliability should also be verified. While the former is determined through (i) the examination of the percentage of variance accounted for, and (ii) the distribution and magnitude of the obtained factor loadings, the latter, which represents a further requirement for construct validity, is assessed by calculating the Cronbach's Alpha statistic for each of the factors. As discussed in the previous chapter (see section 4.6.5.1), while there is a general agreement in the research methodology literature over the acceptable level of the alpha coefficient (0.70 as recommended by Nunnally, 1978)[8], there seems to be little consensus as to what constitutes (i) a 'high' or 'low' factor loading; and (ii) a reasonable percentage of variance accounted for in a factor analysis. This research adopts (70%) as the minimum acceptable percentage of variance accounted for (well above Meranda's, 1997 rule of thumb which regards 50% as the minimum acceptable percentage) and applies 0.60 (in absolute terms) as the 'cutoff value' when determining

[8] Although some authors (e.g. Price and Mueller, 1986, p. 6) have noted 0.60 as the minimum acceptance level.

whether a given factor loading is salient (well above Hair *et al.*'s, 1998, p.111 cutoff value of 0.50).

In addition to the above, discriminant validity among all the main constructs (buyers' and suppliers' asset specificity and their sub-dimensions, outsourcing performance, and collaborative ties) is further assessed through the examination of the 95% confidence intervals around all correlations between construct factors (Anderson, 1987, p. 531).

Finally, in order to address the potential concerns of common method bias, Harman's (1976) one-factor (or single-factor) test and Podsakoff's *et al.* (2003) framework in relation to controlling for common variance method will also be carried out.

5.10.1 Buyers' asset specificity

As can be seen from Table 5.59, the exploratory factor analysis procedure in relation to buyers' asset specificity resulted in the establishment of 5 stable dimensions showing reasonably high loadings and explaining 75.4% of the overall covariance. Buyers' temporal asset specificity factor accounted for 18.4% of the overall covariance and contained three items the loadings of which ranged from 0.83 to 0.92. Buyers' human asset specificity factor accounted for 15.5% of the overall covariance and contained three items the loadings of which ranged from 0.82 to 0.85. Buyers' dedicated asset specificity factor accounted for 15% of the overall covariance and contained three items the loadings of which ranged from 0.81 to 0.88. Buyers' brand capital factor accounted for 13.9% of the overall covariance and contained three items, the loadings of which ranged from 0.64 to 0.87. Buyers' procedural asset specificity was the last factor accounting for 12.6% of the overall covariance and containing also three items, the loadings of which ranged from 0.73 to 0.81. Such results provide adequate evidence to confirm *convergent validity* due to the magnitude of factor loadings offered by items of each factor (the

weakest factor loading being 0.64 well above 0.6). The fact that all items consistently discriminated between the extracted five factors[9] (see Table 5.47) is a good indication suggesting unidimensionality of each of the asset specificity dimensions and confirming *discriminant validity*.

As for the reliability of the measurements of buyers' asset specificity dimensions, the minimum Cronbach alpha value in relation to the five extracted factors was 0.7, and the overall alpha value was 0.82. The internal consistency of buyers' asset specificity is confirmed (see Table 5.59).

[9] Items of each factor did not count any significant loadings on other factors.

Table 5.59: Reliability measures and factor loadings for buyers' asset specificity dimensions

Factor and contents	Loading	Alpha	% of variance explained
Buyers' temporal asset specificity		0.91	18.4
temp1b: The product or service provided by your supplier requires timely delivery	.92		
temp2b: In the relationship with your supplier, precise scheduling is very important	.89		
temp3b: Punctual delivery from your supplier is crucial; hence any delay will result in a significant cost to your company (e.g. loss of clients).	.83		
Buyers' human asset specificity		0.83	15.5
hr3b: Your company has invested considerably in the training of personnel for the purpose of the relationship.	.85		
hr2b: Your company has acquired new knowledge in order to adapt to the specific technological norms of your supplier.	.84		
hr1b: Your company has recruited additional staff for the sole purpose of managing the outsourcing relationship.	.82		
Buyers' dedicated asset specificity		0.82	15
dedi2b: For the purpose of the outsourcing relationship, your company has made additional investments in quality control facilities which are likely to result in excess capacity in the event of contract termination.	.88		
dedi3b: In order to cope with the 'weight' of the relationship with this supplier, your company has made additional investments in communication facilities that are likely to result in excess capacity in the event of contract termination.	.82		
dedi1b: For the purpose of the outsourcing relationship, your company has made additional investments that would result in excess capacity in the event of contract termination.	.81		
Buyers' brand capital		0.78	13.9
brand3b: Any underperformance from your supplier will result in a highly negative effect on your company's reputation.	.87		
brand1b: In the industry in which your company operates, you cannot afford receiving a low quality product or service from your supplier since this will negatively affect your reputation.	.81		
brand2b: Given the importance of your company in the market, your supplier must to its utmost to maintain the quality of service provided to your company.	.64		
Buyers' procedural asset specificity		0.70	12.6
procd3b: The outsourcing relationship has entailed significant changes for the overall operations of your company.	.81		
procd4b: The outsourcing relationship has entailed significant restructuring and downsizing (e.g. redundancies) in your company.	.74		
Procd2br: The outsourcing relationship has entailed NO changes for your employees.	.73		
Total Percentage of Variance			*75.4*
Overall Cronbach Alpha Value for buyers' asset specificity		0.82	

5.10.2 Suppliers' asset specificity

As can be seen from Table 5.60, the exploratory factor analysis procedure in relation to suppliers' asset specificity resulted in the establishment of three stable dimensions showing reasonably high loadings and explaining 72.8% of the overall covariance. Suppliers' site asset specificity factor accounted for 27.1% of the overall covariance and contained four items the loadings of which ranged from 0.83 to 0.94. Suppliers' dedicated asset specificity factor accounted for 25.6% of the overall covariance and contained four items the loadings of which ranged from 0.78 to 0.89. Suppliers' human asset specificity factor accounted for 20.1% of the overall covariance and contained four items the loadings of which ranged from 0.7 to 0.82. Such results provide adequate evidence to confirm *convergent validity* due to the magnitude of factor loadings offered by items of each factor (the weakest factor loading being 0.7 well above 0.6). The fact that all items consistently discriminated between the extracted three factors (see Table 5.50) is a good indication suggesting unidimensionality of each of the asset specificity dimensions and confirming *discriminant validity*.

As for the reliability of suppliers' asset specificity measurements, all Cronbach alpha values in relation to the three extracted factors were well above 0.7 and the overall alpha value was 0.80, thus confirming the internal consistency of the measures employed (see Table 5.60).

Table 5.60: Reliability measures and factor loadings for suppliers' asset specificity dimensions

Factor and contents	Loading	Alpha	% of variance explained
Suppliers' site asset specificity		0.91	27.1
site1s: Your supplier has relocated the whole or part of its operations for the purpose of being nearer to your company since close proximity is important to the outsourcing relationship.	.94		
site2s: Your supplier has relocated the whole or part of its operations for the sole purpose pf the outsourcing relationship with your company and, hence, this relocation has little value outside this relationship.	.92		
site3s: Your supplier has relocated some of its operations or assets in order to improve its services towards your company.	.84		
site4s: The outsourcing relationship requires your supplier to be located near your company.	.83		
Suppliers' dedicated asset specificity		0.89	25.6
dedi2s: Your supplier has expanded its production capacity in the hope of a long-term relationship with your company.	.89		
dedi1s: Your supplier has made extra investments in order to expand its production capacity and to be able to meet your needs.	.88		
dedi5s: Should your outsourcing relationship cease, your supplier would be left with substantial unsold output or excess capacity (e.g. extra staff).	.87		
dedi3s: Your supplier's sales to your company represent an important share of your supplier's total sales.	.78		
Suppliers' human asset specificity		0.77	20.1
hr4s If you were to change your supplier, it would take a long time for a new supplier to serve you as well as the current one.	0.82		
hr1s: Your supplier has customised its own workflows and routines to the peculiarities of your company.	0.80		
hr3s: Your supplier has made a high degree of adaptation (e.g. via training) in order to provide the customised service required by your company.	0.74		
hr2s: Your supplier faced initial difficulties in learning and adapting to your company's way of doing things.	0.70		
Total Percentage of Variance			*72.8*
Overall Cronbach Alpha Value for supplier's asset specificity		0.80	

5.10.3 Outsourcing performance

As can be seen from Table 5.56, the exploratory factor analysis procedure in relation to outsourcing performance resulted in the establishment of a single dimension the item of which showing reasonably high loadings and explaining 67% of the overall covariance. Such results provide adequate evidence to confirm *convergent validity* due to the magnitude of factor loadings offered by all items (the weakest factor loading being 0.66 well above 0.6). Uni-dimensionality could be confirmed by the fact that initially all items (representing outsourcing performance) showed high loading uniquely on one factor (see Table 5.53).

As for the reliability of outsourcing performance measurements, the Cronbach alpha value was well above 0.7, thus confirming the internal consistency of the measures employed (see Table 5.61).

Table 5.61: Reliability measures and factor loadings for outsourcing performance construct

Outsourcing Performance	Loading	Alpha if item deleted	Alpha	% of variance explained
Perf1: Your company is very satisfied with the quality of the service received in terms of consistency, timeless and accuracy.	.90	0.92		
Perf2: Your company is very satisfied with this supplier's responsiveness to problems or queries.	.89	0.92		
Perf3: Your company is very satisfied with the overall benefits obtained from outsourcing this activity.	.88	0.92		
Perf4: Overall, the objectives set by your company in relation to the outsourcing project have been met.	.85	0.92		
Perf5: The service level received from this supplier has exceeded your company's expectations.	.84	0.93		
Perf6: By outsourcing the activity your company – via your supplier – has benefited from better access to skilled personnel.	.78	0.93		
Perf7: By outsourcing the activity your company has benefited from higher quality.	.77	0.93		
Perf8: By outsourcing the activity of reference has allowed your company to concentrate own resources (e.g. staff) on core activities.	.72	0.93		
Perf9: Your company has NOT achieved the target level of cost savings expected by outsourcing this activity.	.66	0.92		
			0.93	67

5.10.4. Collaborative ties

As can be seen from Table 5.56, the exploratory factor analysis procedure in relation to collaborative ties resulted in the establishment of a single dimension the item of which showing relatively high loadings and explaining almost 60% of the overall covariance. Such results provide adequate evidence to confirm *convergent validity* due to the magnitude of factor loadings offered by all items (the weakest factor loading being 0.71 well above the threshold 0.6). Internal consistency of measures and realiability could be confirmed by the Cronbach alpha value which was reasonably high (.85) (see Table 5.62).

Table 5.62: Reliability measures and factor loadings for collaborative ties construct

Collaborative Ties	Loading	Alpha if item deleted	Alpha	% of variance explained
collab1: Your company and the supplier have an extremely collaborative relationship.	.775	0.823		
collab2: Your company and the supplier share both short- and long-term goals.	.730	0.833		
collab3: No major disputes have so far taken place between your company and this supplier.	.741	0.840		
collab4: When your company has queries in relation to the service or product provided, the supplier's employees promptly respond with accurate information.	.811	0.814		
collab5R: Your company and the supplier do NOT generally keep each other's promises.	.712	0.834		
collab6: Your supplier is always willing to provide assistance to your company.	.833	0.813		
			0.851	59

5.10.5 An additional test in relation to discriminant validity

One way to test for discriminant validity among the various constructs is to constrain the estimated correlation parameter between each pair of the various constructs to 1.0 and then perform a chi-square difference test on the values for the constrained and unconstrained models (for each pair) (Joreskog, 1971; Bagozzi and Philips, 1982). *"A significantly lower Chi-square for the model in which the trait correlations are not constrained to unity would indicate that the traits are not perfectly correlated and that discriminant validity is achieved"* (Bagozzi and Philips, 1982, p. 476). However, commenting on the above-mentioned method, Anderson (1987, p. 531) questioned the practical significance of the difference in chi-square using this method and suggested determining *"whether the confidence interval around the correlation between the construct factors include 1.0"*.

Adopting Anderson's (1987) proposed method, discriminant validity of the main constructs (buyers' and suppliers' asset specificity and their sub-dimensions, outsourcing performance, and collaborative ties)[10] was assessed by examining the 95% confidence intervals around all factor correlations so as to determine whether they encompass 1.0. As can be seen from Table 5.63, the factor correlations differ significantly in value. The highest correlation coefficient was 0.556 between temporal and brand buyers' asset specificity. The lowest correlation coefficient was -0.010 between buyers' human asset specificity and collaborative ties. None of the correlation coefficients at the 95% confident interval encompassed 1.0, suggesting discriminant validity among the various main constructs (including their sub-dimensions).

[10] Taking into account all the sub-dimensions in relation to the asset specificity construct, there will be, in total, (10x9) / 2 = 45 pairwise factor correlations.

Table 5.63: Correlation matrix of the various construct components

	THumB	THumS	TsiteS	TdediB	TdediS	TTempB	TbrandB	TprocdB	TPerf	Collab.ties
THumB	1	,281**	,014	,348**	,257**	,095	,108	,338**	-,156	-,010
		,001	,871	,000	,002	,269	,208	,000	,069	,908
	137	137	137	137	137	137	137	137	137	137
THumS	,281**	1	,030	,229**	,226**	,161	,220**	,422**	,033	,071
	,001		,731	,007	,008	,059	,010	,000	,700	,408
	137	137	137	137	137	137	137	137	137	137
TsiteS	,014	,030	1	,135	,254**	-,107	,061	,065	-,143	-,069
	,871	,731		,115	,003	,212	,482	,453	,096	,424
	137	137	137	137	137	137	137	137	137	137
TdediB	,348**	,229**	,135	1	,362**	,052	,178*	,223**	-,158	-,089
	,000	,007	,115		,000	,542	,037	,009	,065	,301
	137	137	137	137	137	137	137	137	137	137
TdediS	,257**	,226**	,254**	,362**	1	,113	,150	,296**	,040	-,016
	,002	,008	,003	,000		,190	,080	,000	,644	,857
	137	137	137	137	137	137	137	137	137	137
TTempB	,095	,161	-,107	,052	,113	1	,556**	,212*	-,483**	-,116
	,269	,059	,212	,542	,190		,000	,013	,000	,179
	137	137	137	137	137	137	137	137	137	137
TbrandB	,108	,220**	,061	,178*	,150	,556**	1	,300**	-,430**	,215*
	,208	,010	,482	,037	,080	,000		,000	,000	,012
	137	137	137	137	137	137	137	137	137	137
TprocdB	,338**	,422**	,065	,223**	,296**	,212*	,300**	1	-,281**	-,036
	,000	,000	,453	,009	,000	,013	,000		,001	,677
	137	137	137	137	137	137	137	137	137	137
TPerf	-,156	,033	-,143	-,158	,040	-,483**	-,430**	-,281**	1	,255**
	,069	,700	,096	,065	,644	,000	,000	,001		,003
	137	137	137	137	137	137	137	137	137	137
Collab.ties	-,010	,071	-,069	-,089	-,016	-,116	,215*	-,036	,255**	1
	,908	,408	,424	,301	,857	,179	,012	,677	,003	
	137	137	137	137	137	137	137	137	137	137

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

5.10.6 Controlling for common method bias

In this research, the author collected most of the data using a single survey instrument, which might raise potential concerns in relation to common method bias. One widely cited statistical technique that addresses such issue is Harman's (1976) one-factor (or single factor) test. The latter consists of loading all the variables in an exploratory factor analysis and examining the unrotated factor solution so as to identify whether a single or major factor would emerge. If, for example, a substantial amount of common method bias exists, a single or general factor accounting for the majority of the variance will emerge from the factor analysis.

An unrotated principal components factor analysis on all continuous variables measured using the survey instrument revealed four factors with eigenvalues greater than 1.0, which together accounted for almost 66.3 per cent of the total variance; also, the first (largest) factor did not account for a majority of the variance (26.93 per cent) (see Table 5.64).

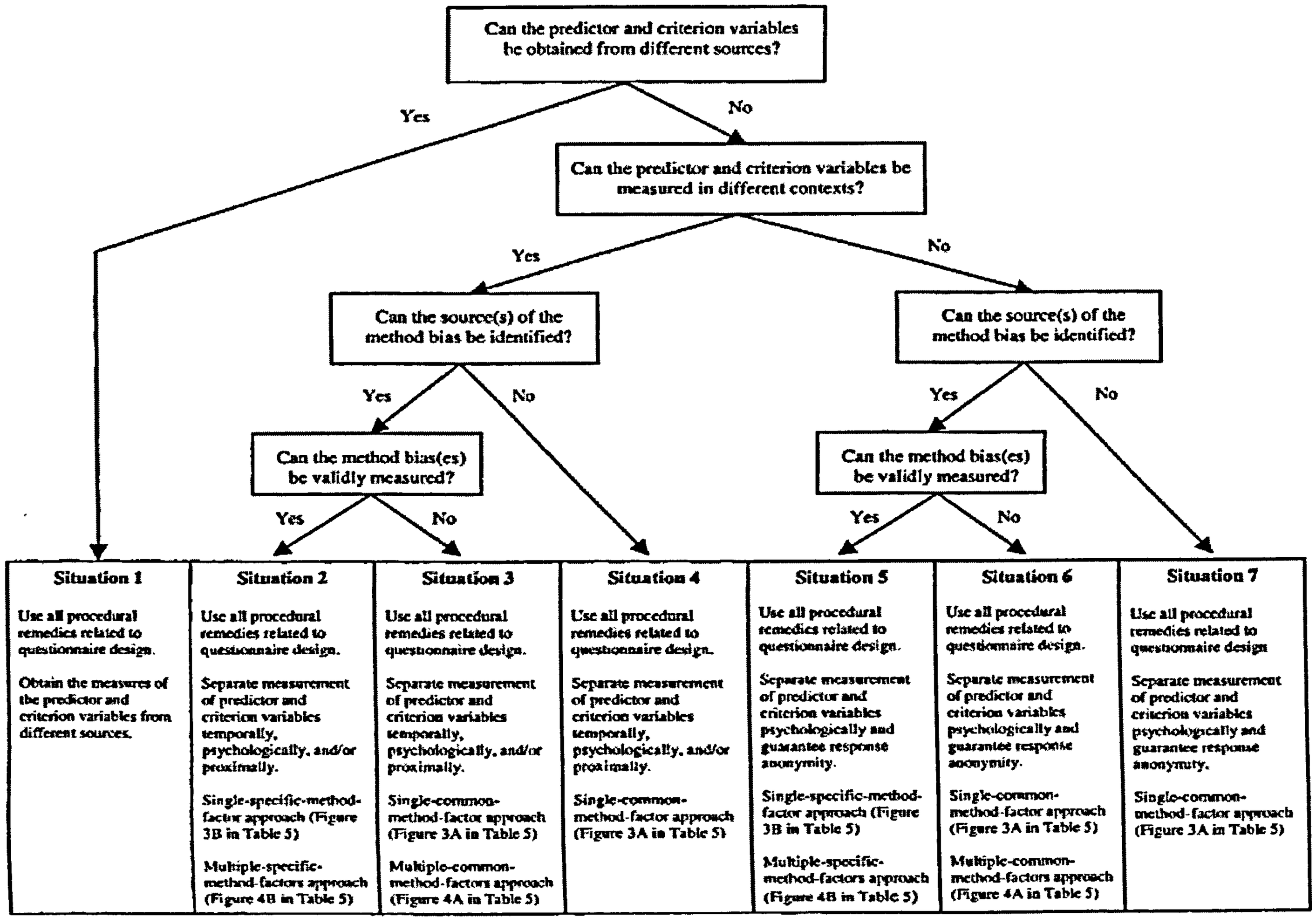
Table 5.64: Unrotated principal components factor analysis for all variables

Component	Initial Eigen values		
	Total	% of Variance	Cumulative %
1	2,694	26,936	20,620
2	1,600	16,000	42,936
3	1,286	12,860	55,796
4	1,051	10,507	66,303

However, it should be noted that although it is widely employed, Harman's one factor test contains a number of limitations, the most important of which is its actual failure to control for method effects (Podsakoff *et al.*, 2003). A more comprehensive framework for dealing with common method bias is the one

developed by Podsakoff *et al.* (2003) in which he presents a number of scenarios depending on the context of the research (see Figure 5.7).

Figure 5.7: Recommendations for controlling for common method bias

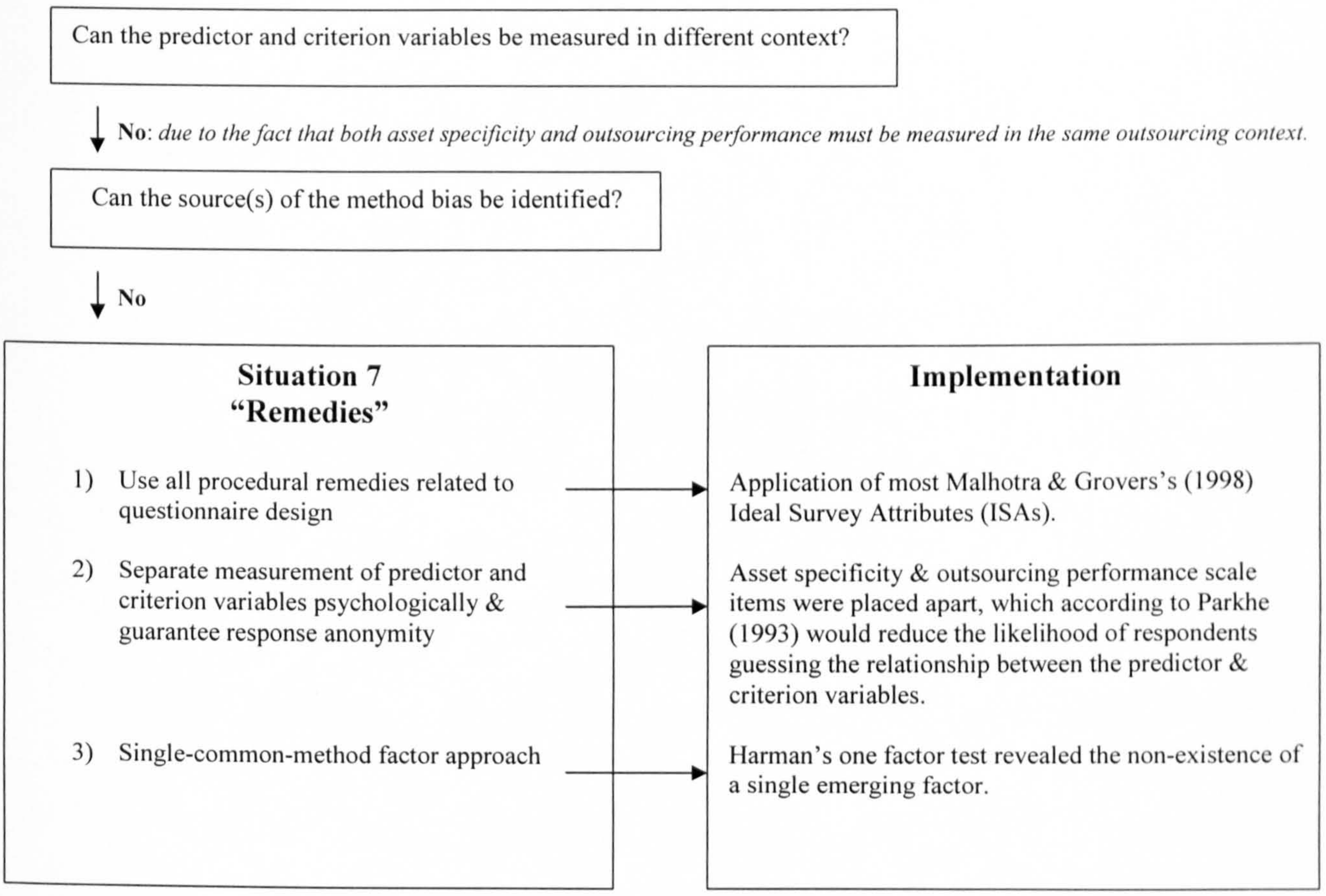


Source: Podsakoff *et al.* (2003, p. 898)

Since in this research the predictor (outsourcing performance) and the criterion variables (asset specificity) could not have been obtained from different sources and cannot be measured in contexts outside the actual outsourcing relationship, and given the fact that that the source of the method bias cannot, a priori, be identified; this study seems to fit Podsakoff's *et al.* (2003) 'situation 7'. In this case, Podsakoff *et al.* (2003) recommends three steps: i) using all procedural remedies in relation to questionnaire design; ii) separating measurement of predictor and criterion variables psychologically while guaranteeing response anonymity; iii) employing a single-common method approach.

As highlighted in Figure 5.8, the first step was implemented through the application of most of Malhotra and Grover's (1998) Ideal Survey Attributes (ISAs) (see Chapter 4, Table 4.3 and Table 4.14). The second step was achieved through the separation of scale item technique (Parkhe, 1993) (As can be seen from appendix 4.1, both asset specificity and outsourcing performance items were placed apart from each other). Finally, the third step was applied using the statistical technique of Harman's (1976) single factor test, which has not shown any single emerging factor (as shown above).

Figure 5.8: An application of Podsakoff's *et al.* (2003) framework in relation to common method bias



CHAPTER SIX: RESULTS AND DISCUSSION

6.1 Chapter overview

Using the purified measurement scales obtained in the previous chapter and employing the hierarchical regression analysis procedure, this chapter reports and discusses the empirical results in relation to the research model that was formulated in chapter three and which consists of a number of hypotheses to be tested.

The chapter begins by testing the base model of the relationship between buyers-suppliers asset specificity dimensions and outsourcing performance whilst controlling for the potential effect of firm size, industry type, and type of activity being outsourced. The impact of reciprocal investments as an additional independent variable to the base model is, thereafter, examined. The chapter continues with an investigation of the moderating effect of collaborative ties on the relationship between asset specificity and outsourcing performance. The chapter ends with a discussion of the research findings which includes a comparison with previous findings from related empirical work.

6.2 Assessing the base model

This thesis employs a multiple regression technique to establish the magnitude and significance of the impact of buyers-suppliers asset specificity dimensions on outsourcing performance. The statistical literature generally refers to two major applications in which regression analysis is employed, namely: (i) prediction, and (ii) causal analysis. Multiple regressions are used in this thesis to investigate the causal relationship between asset specificity and outsourcing performance. As specified in the previous chapter (see section 5.9.2.2), the base model (or the main effect model) to be tested is as follows:

$$Y = b0 + b1X1 + b2X2 + b3X3 + b4\ X4 + b5\ X5 + b6X6 + b7X7 + b8X8.$$

Where

Y = outsourcing performance (Outperf)

b0 = the constant (including the error term)

X1 = Buyers' human asset specificity (Humb)

X2 = Buyers' dedicated asset specificity (DediB)

X3 = Buyers' temporal asset specificity (TempB)

X4 = Buyers' brand asset specificity (BrandB)

X5 = Buyers' procedural asset specificity (ProcdB)

X6 = Suppliers' human asset specificity (HumS)

X7 = Suppliers' dedicated asset specificity (DediS)

X8 = Suppliers' site asset specificity (SiteS)

6.2.1 Descriptive statistics

Descriptive statistics are reported in Table 6.1. As can be seen from the table, the independent variables that had a relatively high mean include buyers' brand and temporal asset specificity, and suppliers' human asset specificity. This could be related to the nature of the four industries under investigation which are all service-related. Such industries are usually characterised by the simultaneous purchase-consumption character that requires timely response and could have a direct effect on the company's brand. It is also interesting to note that outsourcing performance had the highest 'Min' figure (2.80) reflecting perhaps the reluctance of respondents to report mediocre results in relation to the performance of their outsourcing activities.

TABLE 6.1

Descriptive Statistics

Variable	n	Mean	Std. Dev	Min	Max
Dependent Variable					
Outperf	137	5.08	1.12	2.80	6.90
Independent Variables					
(Asset specificity dimensions)					
Buyers Asset specificity					
HumB	137	2.26	1.46	1.00	7.00
DediB	137	1.90	1.20	1.00	5.70
TempB	137	5.13	1.74	1.00	7.00
BrandB	137	5.22	1.50	1.00	7.00
ProcdB	137	3.39	1.47	1.00	6.30
Suppliers Asset Specificity					
HumS	137	4.07	1.48	1.00	6.75
DediS	137	2.76	1.61	1.00	7.00
SiteS	137	1.94	1.65	1.00	7.00

6.2.2 Checking multiple regression assumptions

A number of methodological issues / assumptions require checking and subsequently addressing before Multiple Regression Analysis (MNA) results can be relied on with confidence. These include the issue of sample size, outliers, multicollinearity, linearity, and normality.

6.2.2.1 Sample size

In multiple regression analysis, sample size is very important for 'generalisability' purpose (Pallant, 2001). It could also have a significant effect on tests of statistical significance such as *t* tests and *F* tests both of which are approximations that tend to deteriorate significantly when the sample is relatively small (Allison, 1999). Different authors tend to provide different guidelines in relation to the minimum sample required for multiple

regression. For example, while Stevens (1996, p. 72) contends that *"15 subjects per predictor are needed for a reliable equation"*, Tabachnick and Fidell (2007) suggest that the sample should be bigger than (50 + 8m) (where m = number of independent variables). The usable sample size that is employed in the course of this research meets both Steven (1996) and Tabachnick and Fidell's (2007) suggested criteria. Indeed since the number of independent variables (predictors) that constitutes our base model is 8, the number of observations required is 120 (15 * 8 = 120 applying Steven's rule of thumb) and 114 (50 + 8*8 = 114) applying Tabachnick and Fidell's suggested formula.

6.2.2.2 Outliers

Multiple regression is generally highly sensitive to extreme cases (Pallant, 2001). As such, outliers could have a large negative impact on the regression solution that can affect the precision of estimation in relation to the regression weights (Fox, 1991). According to Tabachnick and Fidell (2007), the presence of multivariate outliers can be detected using either statistical methods (e.g. Mahalanobis distance) or using graphical methods such as the residual scatter plot. This thesis screens for outliers using both methods.

As can be seen from Table 6.2, using $p < .001$ criterion for Mahalanobis distance with reference to the critical values of Chi Square, only two cases (90 and 51) were found to be exceeding the critical value of *26.125* (corresponding to 8 independent variables according to the critical values of Chi-Square table that is presented by Pearson and Hartley, 1958 and which was cited in Tabachnick and Fidell, 2007, p. 949).

Table 6.2: The Mahalanobis distance test

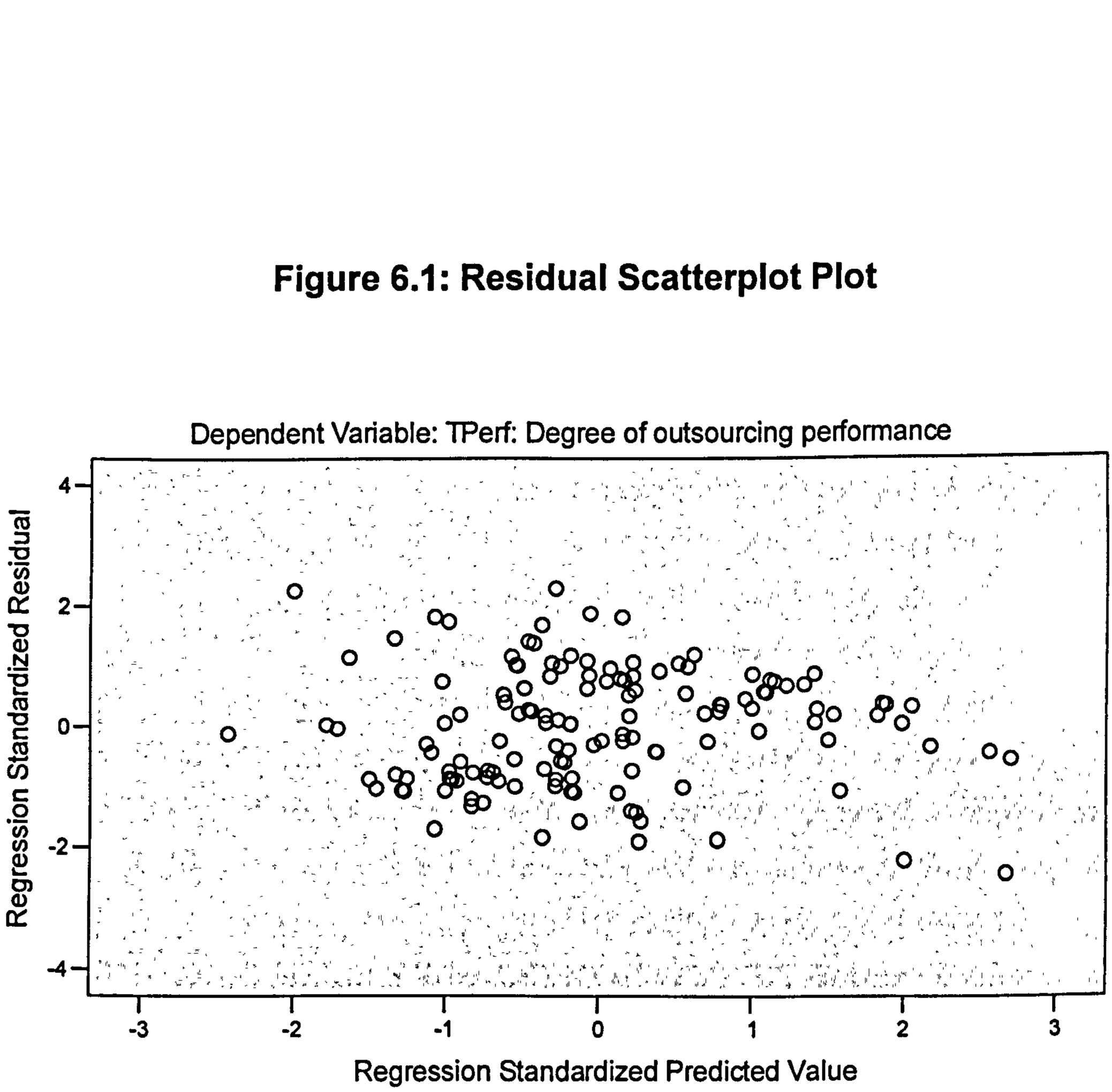
			Case Number	Mahalanobis Test Value	Critical Value at p < .001*
Mahalanobis Distance	Highest	1	90	[illegible]	26.125
		2	51	[illegible]	
		3	46	25.17911	
		4	91	24.77537	
		5	107	24.41384	
	Lowest	1	6	1.79941	
		2	76	1.86893	
		3	79	1.95428	
		4	39	1.95948	
		5	13	2.19646	

*Value corresponding to a number of independent variables that is equal to 8 and obtained from the Biometrika tables for statistics (1958) that was reproduced by Tabachnick and Fidell (2007, p. 949).

However, in order to ensure whether these two cases are extreme enough to cause problems, the graphical residual scatter plot method is employed. As can be seen from Figure 6.1, the standardised residual values are within the acceptable range (-3.3 to 3.3) that is suggested by Tabachnick and Fidell (2007, p. 128), which indicates the absence of outliers.

Given the outcome of the residual scatter plot and taking into account the fact that an initial data screening process (checking for outliers) has already been employed (see section 5.5.1), no action will be taken towards the two extreme cases that were identified using the Mahalanobis test (case 90 and 51). Indeed, as highlighted by Pallant (2001, p. 144) *"with large samples, it is not uncommon to find a number of outlying residuals. If you only find a few, it may be not necessary to take any action".*

Figure 6.1: Residual Scatterplot Plot



6.2.2.3 Multicollinearity

Multicollinearity refers to the relationship among the independent variables. *"It is a question of degree and not of kind. The meaningful distinction is [hence] not between the presence and the absence of multicollinearity, but between its various degrees"* (Gujarati, 1988, p. 298). As such, the degree of multicollinearity should be determined by the degree of strength of the relationship among the independent variables. According to Allison (1999), while a perfectly related linear function among independent variables indicates the presence of *'extreme multicollinearity'*, a strong but not perfect linear relationship could be a sign of *'near-extreme multicollinearity'*. The correlation coefficients for pairs of variables in relation to our model are provided in Table 6.3. Based on Tabachnich and Fidell's (2007) suggested cut-off line (.7), there seems to be no pairs of independent variables that are correlated highly enough to cause concern

with multicollinearity (the highest correlation was between brand and temporal asset specificity, r = 0.556). It is also interesting to note that buyers' temporal, brand, and procedural asset specificity show correlation with outsourcing performance that is significant at p < 0.005.

TABLE 6.3

Variable Correlations

	Outperf	HumB	DediB	TempB	BrandB	ProcdB	HumS	dedis	SiteS
Outperf	1.00								
HumB	-0.156	1.00							
DediB	-0.158	0.348*	1.00						
TempB	-0.483*	0.95	0.052	1.00					
BrandB	-0.430*	0.108	0.178	0.556*	1.00				
ProcdB	-0.281*	0.338*	0.223**	0.212	0.300*	1.00			
HumS	0.350*	0.281*	0.229**	0.161	0.220**	0.422*	1.00		
DediS	0.322	0.257**	0.362*	0.113	0.150	0.296*	0.226**	1.00	
SiteS	-0.143	0.014	0.135	-0.107	0.061	0.065	0.030	0.254**	1.00

* Statistically significant at p < 0.001

* Statistically significant at p < 0.005

Nevertheless, to further check for the potential problem of multicollinearity, both the tolerance level ($1 - R^2$) and the Variance Inflation Factor (VIF) are examined. According to Allison (1999), any tolerance level below .40 and any VIF value over 2.50 could indicate the existence of a multicollinearity problem. As can be seen from Table 6.4, all our tolerance levels and VIF values clearly meet Allison's (1999) rule of thumb, suggesting a low degree of multicollinearity (the largest VIF was 1.584 and the lowest tolerance level was .631).

Table 6.4: Collinearity diagnostics

Independent Variables	Collinearity Statistics	
	Tolerance	VIF
Buyers' Human Asset Specificity (HumB)	.784	1.275
Suppliers' Human asset specificity (HumS)	.779	1.283
Suppliers' Site specificity (SiteS)	.898	1.113
Buyers' Dedicated Asset Specificity (DediB)	.774	1.291
Suppliers' Dedicated Asset specificity (DediS)	.764	1.308
Buyers' Temporal Asset specificity (TempB)	.661	1.513
Buyers' Brand Capital (BrandB)	.631	1.584
Buyers' Procedural Asset Specificity (procdB)	.707	1.414

6.2.2.4 Normality, linearity, and homoscedasticity

One of the ways that normality, linearity and homoscedasticity could be checked for, is by examining the residual scatter plot (Tabachnick and Fidell, 2007). As can be gathered from Figure 6.1, all three assumptions seem to be met. As far as homoscedasticity is concerned, we can note that the standard deviations of errors of prediction are approximately equal for all predicted dependent variable scores. The assumption of both linearity and normality seems also to be met as the scatter plot of the standardised residuals displays an overall rectangular shape with most of the scores concentrated in the centre. In order to further check for normality, the Normal Probability Plot was also inspected. As shown in Figure 6.2, all points form a reasonably straight diagonal line from bottom left to top right, suggesting no major deviation from normality (Pallant, 2001).

TABLE 6.5

Results of standard regression analysis: The influence of control variables on outsourcing performance

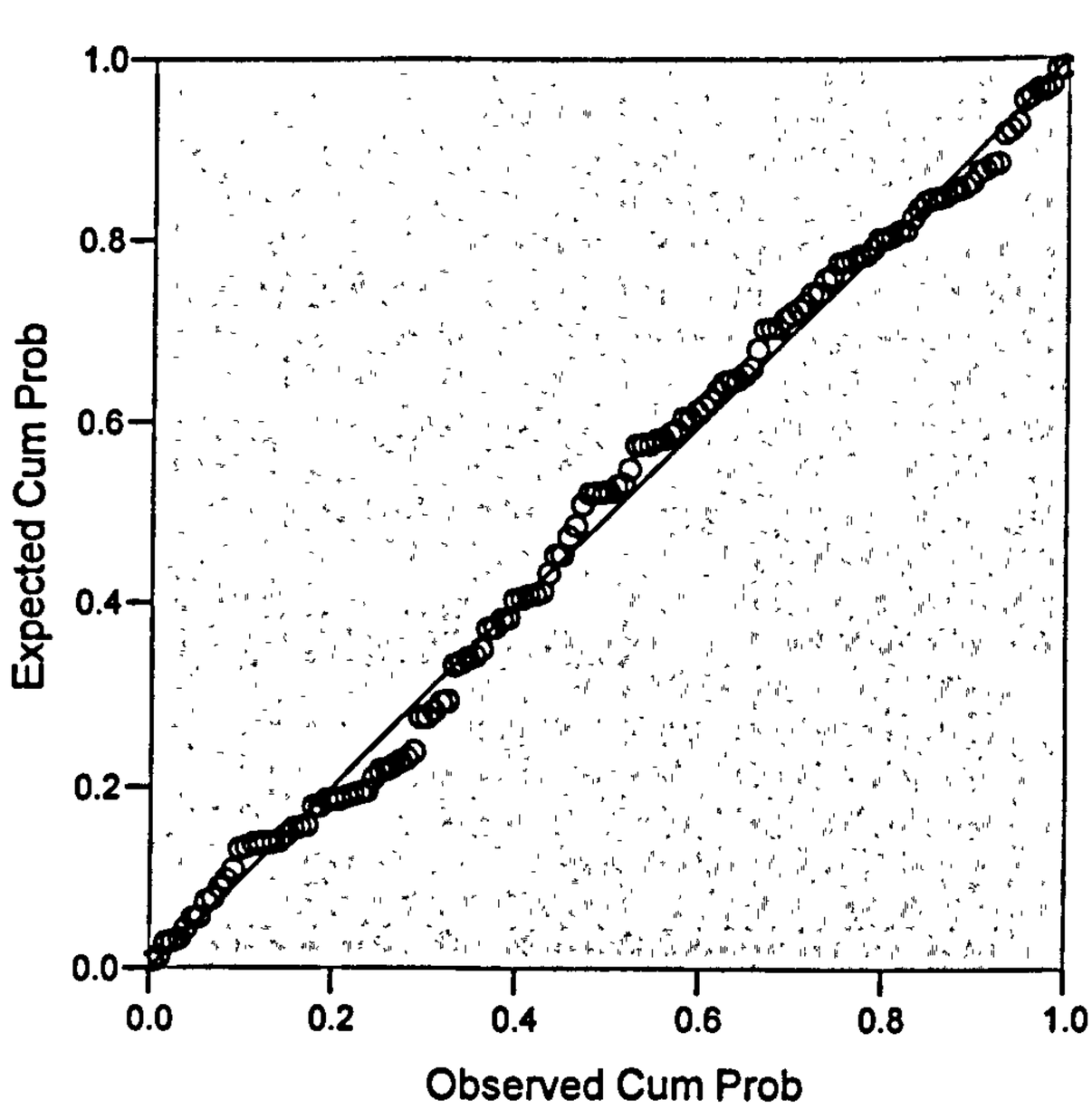
Independent Variables	b[a]	SE	Beta[b]	T-Value	p-Value
Intercept	5.476	0.426		12.850	.000
Control variables					
Firm size	-0.083	0.123	-0.059	-0.677	.499
Industry type	-0.014	0.083	-0.014	-0.162	.871
Type of activity being outsourced	-.0.051*	0.071	-0.063***	-0.728	.468
R^2	.007				
Adjusted R^2	-.015				
F	.329				
N	137				

[a]Unstandardised regression coefficient
[b]Standardised regression coefficient

6.2.3.2 Relationship between asset specificity and outsourcing performance

Table 6.6 presents the regression results regarding the base model. The results show that, after controlling for firm size, industry type, and type of activity being outsourced, buyers' and suppliers' asset specificity variables are significant predictors of outsourcing performance [F (11, 125) = 8.768, p<.001]. The R^2 of .436 value indicates that 42.9 per cent (43.6 per cent – 0.7 per cent) of the variability in outsourcing performance is predicted by the five buyers' and three suppliers' asset specificity variables. In line with H1a that was distilled from the traditional view of TCT and in contradiction with H5a as generated from the 3rd stream of SBT, all buyers' asset specificity variables were found to decrease outsourcing performance (both *b* and *Beta* in relation to all buyers' asset specificity dimensions showed a negative figure). However, while support for *H1a* was found in all five buyers' asset specificity dimensions (human asset specificity, dedicated asset specificity, temporal asset specificity, brand asset specificity, and procedural asset specificity), results in relation to the suppliers' asset specificity variables were generally supportive for *H5b*, revealing a positive

Figure 6.2: Normal Probability Plot of Regression Standardized Residual



6.2.3 Regression results in relation to the base model

In order to control for the potential effect of firm size, industry type and type of activity being outsourced, a standard regression analysis is firstly used so as to assess the significance of variance in outsourcing performance that might be explained by these variables.

6.2.3.1 Controlling for firm size, industry type and type of activity being outsourced

As can be seen from Table 6.5, all coefficients in relation to the control variables are insignificant. Taken together, the three control variables (firm size, industry type, and type of the activity being outsourced) do not exert a combined significant impact upon outsourcing performance [F (3,133) = .329, p=.805], explaining together only 0.7 per cent of its overall variance (R^2 = .007).

TABLE 6.6

Results of regression analysis: The impact of buyers' and suppliers' asset specificity on outsourcing performance

Independent Variables	b[a]	SE	Beta[b]	T-Value	p-Value
Control variables					
Firm size	-0.040	.110	-0.028	-0.362	.718
Industry type	-0.051	.067	-0.053	-0.768	.444
Type of activity being outsourced	0.054	0.058	0.066	0.927	.356
Buyers' Asset Specificity					
HumB	-0.078	0.058	-.102	-1.336	.184
DediB	-0.131†	0.072	-.140†	-1.813	.072
TempB	-0.261***	0.054	-.405***	-4.853	.000
BrandB	-0.142*	0.066	-.190*	-2.158	.033
ProcdB	-0.195**	0.061	-.257**	-3.181	.003
Suppliers' Asset Specificity					
HumS	0.200**	0.059	.264**	3.370	.001
DediS	0.187**	0.049	.269**	3.255	.001
SiteS	-0.145**	0.057	-.214**	-2.967	.004
Constant	7.195***	0.438		16.436	.000
R^2	.436				
Adjusted R^2	.386				
F	8.768***				
F change	11.852***				
N	137				

[a]Unstandardised regression coefficient
[b]Standardised regression coefficient
† p < .10;
* p < .05;
** P < .01;
*** p < .001

As such, the main effect model would be:

Outsourcing performance = 7.195 – (0.078 HumB) – (0.131 DediB) – (0.261 TempB) – (0.142 BrandB) – (0.195 ProcdB) + (0.200 HumS) + (0.187 DediS) – (0.145 SiteS).

relationship with outsourcing performance in all suppliers' asset specificity variables with the exception of site specificity which is found to be having a negative effect upon outsourcing performance.

In order to compare the magnitude of each predictor of outsourcing performance among buyers and suppliers' asset specificity, *"it is essential to have a clear understanding of the units of measurement for the dependent* [outsourcing performance] *and independent variables* [asset specificity variables]" (Allison, 1999, p. 28). The standardised coefficients (as opposed to the unstandardised ones) seem to solve the issue by assembling all coefficients into a common metric being the *standard deviation units*. As such, the Beta values presented in table 6.5 indicate how many standard deviations outsourcing performance changes with an increase of one standard deviation in the asset specificity variables. Comparing these values across all independent variables, we find that while temporal (Beta = -.405, $p < .001$) and procedural asset specificity (Beta = -.257, $p < .005$) are the best predictor of outsourcing performance among buyers' asset specificity, all suppliers' asset specificity variables are equally important reporting Beta values that are very close to each other in absolute terms. Among all the independent variables, buyers' human asset specificity (HumB) seems to be the only insignificant variable. Buyers' dedicated asset specificity has not also shown great significance (Beta = -.137, $p < .10$).

In order to find out whether buyers' or suppliers' asset specificity variables explain most of the variance in outsourcing performance, a hierarchical regression analysis method is used. In addition to the ability to estimate the statistical significance of the coefficients corresponding to our set of hypotheses, this method enables us to assess changes in the proportion of variance explained (R^2) and the statistical significance of the changes taking place with the introduction of each block of variables.

As can be seen from Table 6.7, while buyers' asset specificity accounts for 29.9% of the variance in outsourcing performance, suppliers' asset specificity explains only 13.7% of the variance (R^2 change = .137). The contribution of the suppliers' asset specificity towards outsourcing performance should not, however, be underestimated as it remains highly significant (R^2 change = .130, $p < .001$).

TABLE 6.7

Results of regression analysis: The influence of buyers' and suppliers' asset specificity on outsourcing performance

Independent Variables	b[a]	SE	b[a]	SE
Control variables				
Firm size	-0.004	0.109	-0.040	0.110
Industry type	-0.024	0.072	-0.051	0.067
Type of activity being outsourced	0.014	0.063	0.054	0.058
Block 1				
Buyers' Asset Specificity				
Human	-0.029	0.063	-0.078	0.058
Dedicated	-0.063	0.077	-0.131†	0.072
Temporal	-0.224***	0.058	-0.261***	0.054
Brand	-0.139†	0.063	-0.142*	0.066
Procedural	-0.096	0.072	-0.195**	0.061
Block 2				
Suppliers' Asset Specificity				
Human			0.200**	0.059
Dedicated			0.187**	0.057
Site			-0.145**	0.049
R^2	.299		.436	
$\triangle R^2$			.137	
F change				9.671***

[a]Unstandardised regression coefficient
† p < .10; * p < .05; ** P < .01; *** p < .001

6.3 The effect of reciprocal specific investments on outsourcing performance

As outlined in chapter four (section 4.6.2.2), reciprocal investments was assessed using the interaction technique. Nevertheless, in an attempt to tackle the multicolinearity issue that is likely to occur by the employment of such a technique (interaction) and as recommended by the literature (see for example Aiken and West, 1991), the mean-centered scores were

employed so as to reduce multicollinearity among the predictor variables and the interaction terms.

Based on the notion of reciprocal exposure, *Hypothesis 6* stated that reciprocal investments of high asset specificity (made by exchange parties) in a transactional relationship will have a positive effect on outsourcing performance. All 15 interaction terms among buyers and suppliers' asset specificity dimensions were computed, and the results from the regression analysis were highly corroborative in three interaction instances[1]. Indeed, as can be seen from Table 6.8, suppliers' site asset specificity (which was found in section 6.2.3 to be having a negative relationship with outsourcing performance) positively interacted with buyers' temporal asset specificity in affecting outsourcing performance ($p<0.001$). Similarly, a positive and significant interaction was also found between suppliers' human asset specificity and buyers' dedicated asset specificity ($p<0.01$), and between suppliers' dedicated asset specificity and buyers' temporal asset specificity ($p <0.01$). In addition, the incremental variance in outsourcing performance accounted for by the above mentioned three interactions was found to be significant (R^2 change = .141, $p <0.001$). Overall, the addition of the three interaction variables improved R^2 significantly, from .436 to .577, adding, hence, 14.1% of the variance in outsourcing performance.

[1] To conserve space in table 6.8, the author reported only the three significant interactions regarding reciprocal investments. All other interactions are reported in appendix 6.1

TABLE 6.8

Results of hierarchical regression analysis: *The effect of reciprocal specific investments (leading to reciprocal exposure) on outsourcing performance*

		Base Model			Model incorporating interaction between Buyers' & suppliers' Asset specificity	
Independent Variables	**b**	**Beta**	**SE**	**b**	**Beta**	**SE**
Control Variables						
Firm size	-0.040	-0.028	0.110	-0.036	-0.025	0.097
Industry type	-0.051	-0.053	0.067	-0.046	-0.047	0.059
Type of activity being outsourced	0.054	0.066	0.058	0.082	0.101	0.051
Buyers' AS						
HumB	-0.078	-0.102	0.058	-0.053	-0.069	0.051
DediB	-0.131†	-0.140†	0.072	-0.134*	-0.143*	0.066
TempB	-0.261***	-0.405***	0.054	-0.297***	-0.461***	0.049
BrandB	-0.142*	-0.190*	0.066	-0.162*	-0.271*	0.059
ProcdB	-0.195**	-0.257**	0.061	-0.105†	-0.137†	0.056
Suppliers' AS						
HumS	0.200**	.264**	0.059	0.139*	0.183*	0.055
DediS	0.187**	.269**	0.057	0.197***	0.283***	0.051
SiteS	-0.145**	-.214**	0.049	-0.074†	-0.110†	0.044
Reciprocal investment						
DediB x HumS				0.116**		
TempB x SiteS				0.083***		
TempB x DediS				0.074**		
Constant	7.195***		16.436			
R^2		.436			.577	
Ajusted R^2	.386			.491		
$\triangle R^2$				.141		
F change				13.631***		

[a]Unstandardised regression coefficient
[b]Standardised regression coefficient
† p < .10; * p < .05; ** P < .01; *** p < .001

To visually inspect the effect of reciprocal specific investments, the significant interaction terms were plotted against the outsourcing performance values expected on the basis of their unstandardised

regression coefficients (Figure 6.3, 6.4 and 6.5). The high level asset specificity lines indicate values ranging from 5 to 7 in the Likert scale employed in the survey, the medium level asset specificity lines refer to values ranging from 3 to 5, and the low level asset specificity plots indicate values ranging from 1 to 3. Figure 6.3, 6.4 and 6.5 display patterns consistent with the predictions of Hypothesis 6.

Figure 6.3: Interaction: Buyers' temporal specificity, suppliers' site specificity, and outsourcing performance

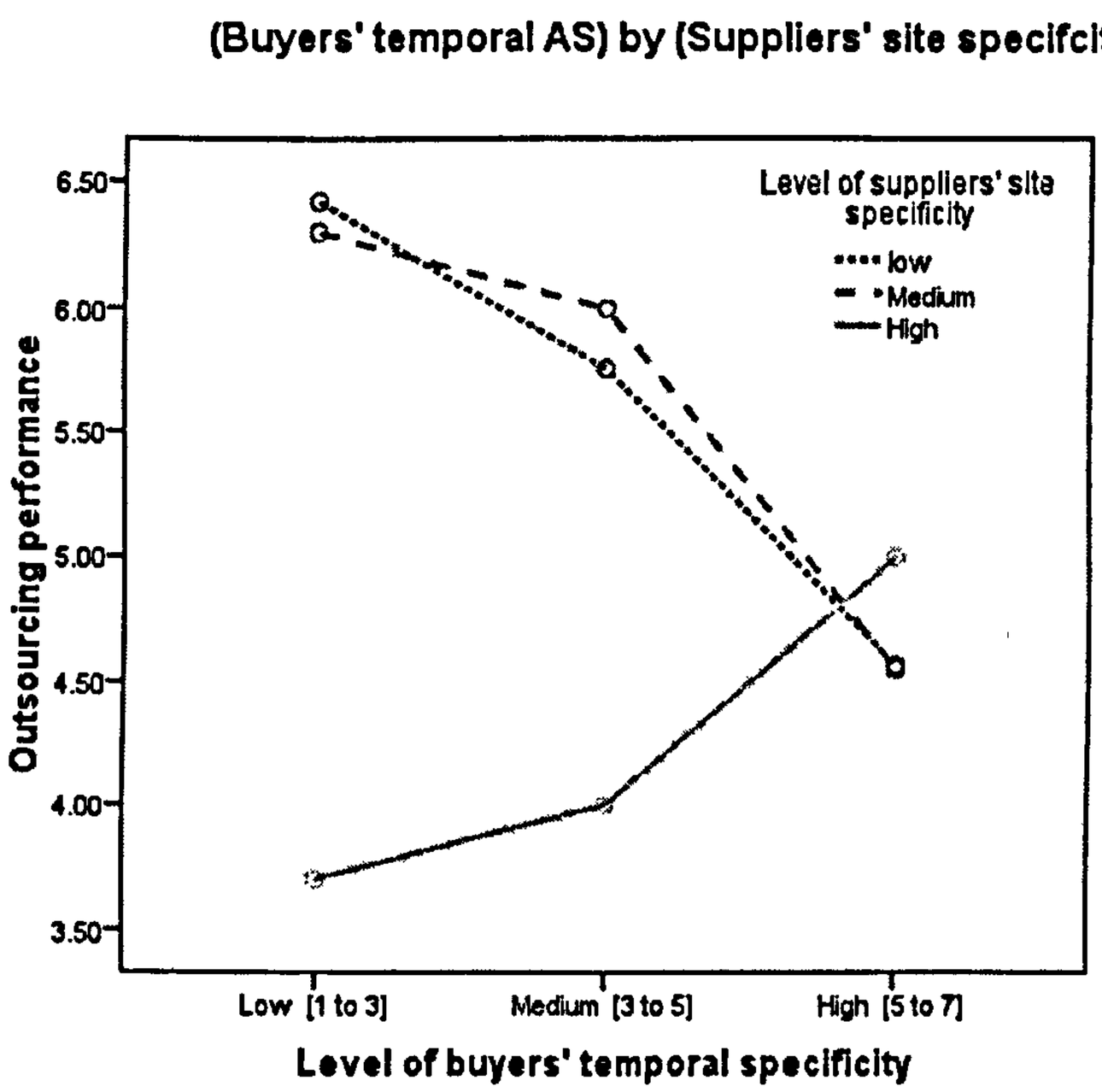


Figure 6.4: Interaction: Buyers' dedicated AS, suppliers' human AS, and outsourcing performance

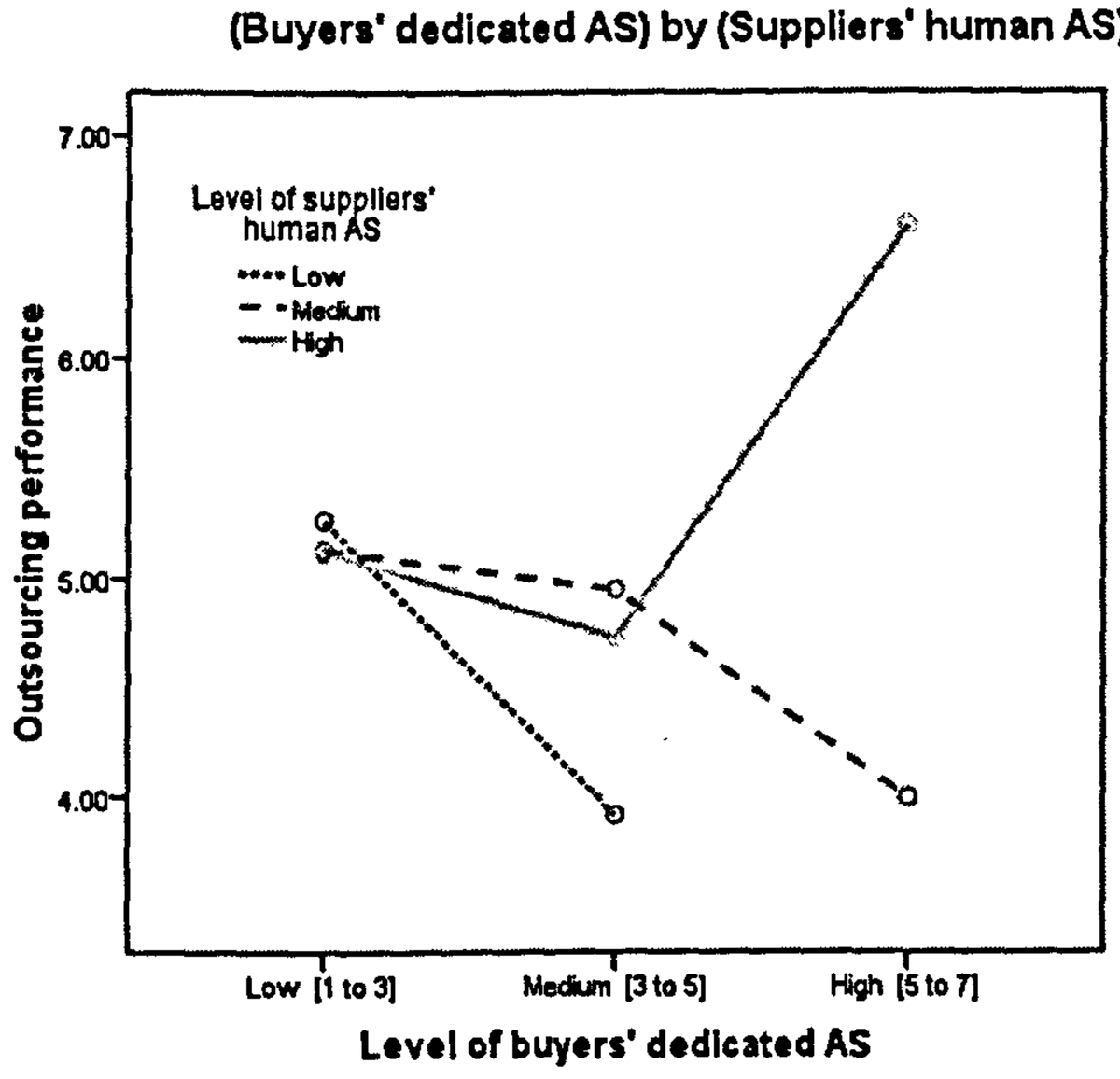
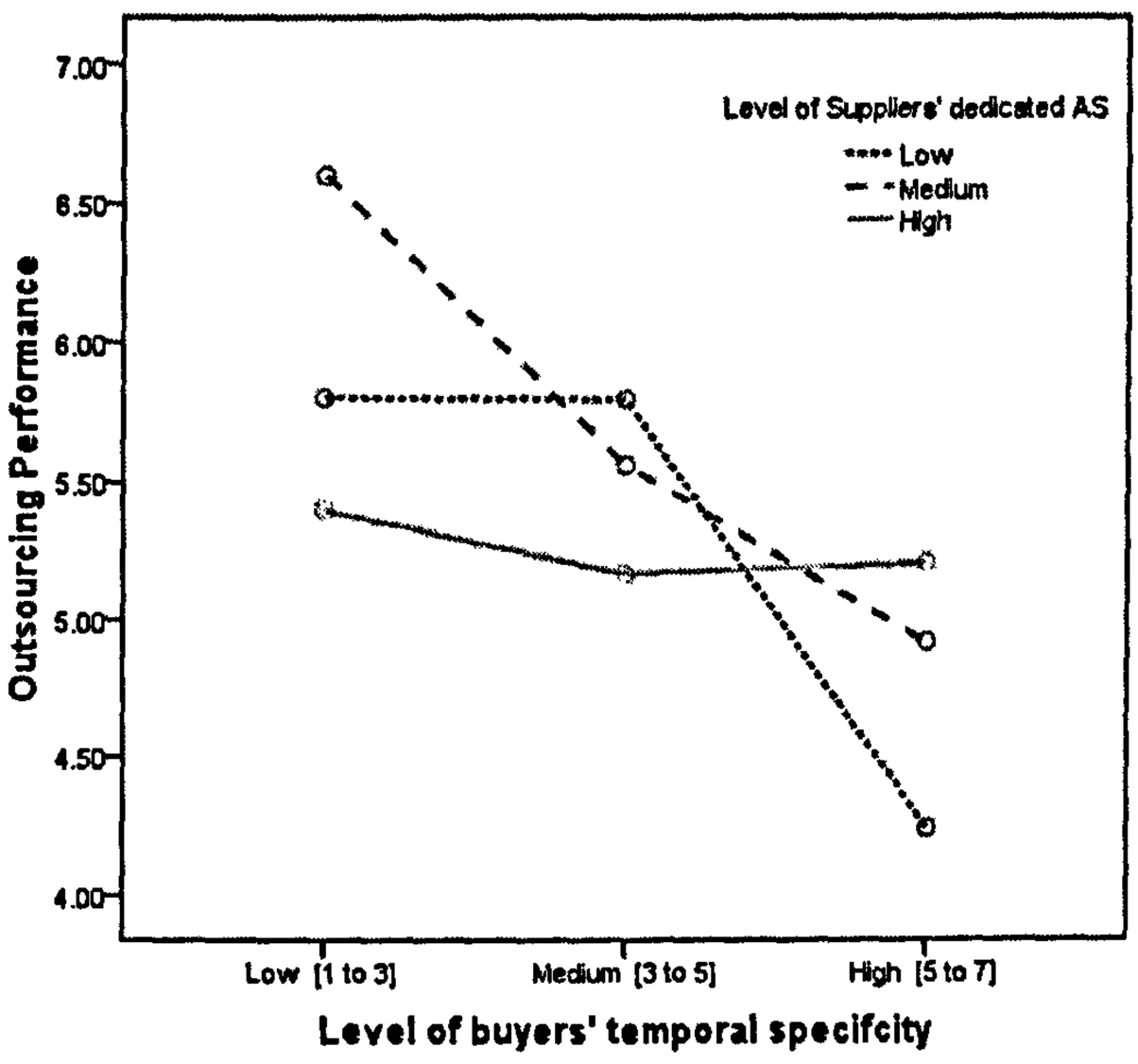


Figure 6.5: Interaction: Buyers' temporal specificity, suppliers' dedicated AS, and outsourcing performance.



6.4 The moderating effect of collaborative ties

Hypothesis 4 stated that collaborative ties among outsourcing buyers and suppliers can positively moderate the relationship between asset specificity and outsourcing performance. In line with the recommendation of Jaccard *et al.* (1990), the moderating effect was investigated using the interaction technique that was performed on the mean-centered scores so as to avoid the occurrence of multicollinearity. The results from the regression analysis did not support the hypothesised moderation effect. Indeed, as can be seen from Table 6.8, all the interaction terms of collaborative ties with each of the buyers and suppliers' asset specificity dimensions were not significant.

However, while collaborative ties does not seem to have any significant moderation effect on the relationship between asset specificity and outsourcing performance (see Table 6.9), the construct was found to be positively related to outsourcing performance (Beta = .228, p <.01). Overall, the addition of the collaborative ties variable to the base model improved R^2 significantly, from .436 to .476 (R^2 change = .041, p <.01), hence explaining a further 4.1% of the variance in outsourcing performance (see Table 6.10).

TABLE 6.9

Results of hierarchical regression analysis: *The Moderation effect of collaborative ties on the relationship between asset specificity and outsourcing*

Independent Variables	Base Model b	Base Model Beta	Base Model SE	Moderating model incorporating interaction between collaborative ties and buyers-suppliers AS dimensions b	Moderating model incorporating interaction between collaborative ties and buyers-suppliers AS dimensions Beta	Moderating model incorporating interaction between collaborative ties and buyers-suppliers AS dimensions SE
Control Variables						
Firm size	-0.040	-0.028	0.110	-0.012	-0.016	0.114
Industry type	-0.051	-0.053	0.067	-0.036	-0.044	0.083
Type of activity being outsourced	0.054	0.066	0.058	0.045	0.022	0.060
Buyers' AS						
HumB	-0.078	-0.102	0.058	-0.087	-0.113	0.058
DediB	-0.131†	-0.140†	0.072	-0.104	-0.112	0.077
TempB	-0.261***	-0.405***	0.054	-0.236***	-0.365***	0.059
BrandB	-0.142*	-0.190*	0.066	-0.224**	-0.299**	0.072
ProcdB	-0.195**	-0.257**	0.061	-0.145*	-0.190*	0.063
Suppliers' AS						
HumS	0.200**	.264**	0.059	0.174**	0.229**	0.061
DediS	0.187**	.269**	0.049	0.173**	0.249**	0.051
SiteS	-0.145**	-.214**	0.057	-0.107*	-0.158*	0.057
Collaborative Ties				0.206*	0.189*	0.088
Moderating effect of collaboration						
Collab X TempB				0.075	0.137	0.048
Collab X BrandB				-0.068	-0.103	0.057
Collab X DediB				0.109	0.140	0.067
Collab X ProcdB				0.010	0.014	0.057
Collab X HumB				0.009	0.013	0.055
Collab X HumS				0.031	0.042	0.057
Collab X DediS				-0.034	-0.051	0.053
Collab X SiteS				0.035	0.058	0.051
Constant	7.195***			5.074***		
R^2		.436			.499	
Ajusted R^2		.386			.413	
$\triangle R^2$					.063	

Note : † p < .10; * p < .05; ** P < .01; *** p < .001

TABLE 6.10

Results of hierarchical regression analysis: The impact of collaborative ties on outsourcing

	Base Model			Incorporation of collaborative ties		
Independent Variables	**b**	**Beta**	**T-Value**	**b**	**Beta**	**T-Value**
Control Variables						
Firm size	-0.040	-0.028	-0.362	-0.023	-0.016	-0.212
Industry type	-0.051	-0.053	-0.768	-0.043	-0.044	-0.661
Type of activity being outsourced	0.054	0.066	0.927	0.018	0.022	0.314
Buyers' AS						
HumB	-0.078	-0.102	-1.336	-0.084	-0.110	-1.491
DediB	-0.131†	-0.140†	-1.813	-0.097	-0.104	-1.375
TempB	-0.261***	-0.405***	-4.853	-0.208***	-0.323***	-3.809
BrandB	-0.142*	-0.190*	-2.158	-0.211**	-0.282**	-3.132
ProcdB	-0.195**	-0.257**	-3.181	-0.171**	-0.225**	-2.853
Suppliers' AS						
HumS	0.200**	.264**	3.370	0.178**	0.235**	3.079
DediS	0.187**	.269**	3.255	0.175**	0.252**	3.147
SiteS	-0.145**	-.214**	-2.967	-0.124*	-0.183*	-2.598
Collaborative Ties				.248**	.228**	3.103
Constant	7.195***			5.997***		
R^2	.436			..476		
Ajusted R^2	.386			.425		
$\triangle R^2$				.041		
F Change				9.626**		

[a]Unstandardised regression coefficient
[b]Standardised regression coefficient
† p < .10;
* p < .05;
** P < .01;
*** p < .001

6.5 Summary of the results

Table 6.11 provides a summary of the results of regression analysis. Model 1 includes the control variables (firm size; industry type; and type of activity being outsourced). Model 2 adds asset specificity dimensions from both the buyer and supplier's side. Model 3 introduces the collaborative ties construct. Model 4 adds the various interactions of collaborative ties with the asset specificity variables, and Model 5 tests for the effect of reciprocal investments by adding the interaction terms of buyers' asset specificity dimensions with those of suppliers.

In sharp contradiction to Hypothesis 5a, Hypothesis 1a states that an increase in buyers' asset specificity (across dimensions) will negatively affect outsourcing performance. As shown in the base model (model 2 in Table 6.11), all buyers' asset specificity dimensions (with the exception of human asset specificity, the effect of which was insignificant) were consistently negatively signed and were found, therefore, to decrease outsourcing performance. Buyers' temporal asset specificity ($p < 0.001$), buyers' procedural asset specificity ($p < 0.01$), buyers' dedicated asset specificity ($p < 0.10$), and buyers' brand capital ($p < 0.05$) were all negatively related to outsourcing performance. This result displays general support for Hypothesis 1a and, therefore, leads to the rejection of Hypothesis 5a. Whilst general support for Hypothesis 1a was found, results in relation to suppliers' asset specificity dimensions (Hypothesis 1b and Hypothesis 5b) portrayed a more mixed picture. As predicted by the traditional view of transaction cost theory, site specificity ($p <0.01$) was found to have a significant negative impact on outsourcing performance, however, results in relation to both suppliers' human asset specificity ($p < 0.01$) and suppliers' dedicated asset specificity ($p < 0.01$) appear to be in line with Hypothesis 5b displaying a rather positive relationship with outsourcing performance.

Hypothesis 4 states that *collaborative ties* positively moderates the relationship between asset specificity and outsourcing performance. To

test this hypothesis we first had to include collaborative ties as an additional independent variable (Model 3 in Table 6.11) and then test for moderating interactions (Model 4). As can be seen from Model 4, all the interaction terms of collaborative ties with each of the buyers and suppliers' asset specificity dimensions were not significant. Hence, we did not find empirical support for Hypothesis 4. While collaborative ties was positively related to outsourcing performance (R^2 change = 0.41, $p < 0.01$, in Model 3), it did not appear to have any significant moderating effect on the relationship between asset specificity and outsourcing performance.

Based on the notion of reciprocal exposure, Hypothesis 6 postulates that reciprocal investments with high asset specificity content will positively affect outsourcing performance. As shown in Model 5, the results corroborated this proposition in three interaction instances: (i) Buyers' temporal asset specificity by suppliers' site ($p < 0.001$); (ii) Buyers' dedicated asset specificity by suppliers' human asset specificity ($p < 0.01$); and (iii) Buyers' temporal asset specificity by suppliers' dedicated AS ($p < 0.01$). In addition, the incremental variance in outsourcing performance that was accounted for by the three above-mentioned interactions was found to be significant (R^2 change = .141, $p < .001$).

According to Jaccard *et al.* (1990), in the presence of significant interaction terms, the main effect becomes conditional. Since significant interaction terms were found between two dimensions of buyers and suppliers' asset specificity, the main effect of buyers' asset specificity (highlighted in Model 2) should be interpreted as simply the effect of buyers' asset specificity on outsourcing performance when suppliers' specificity dimensions are absent, and vice versa.

Table 6.12 depicts the results in relation to the various hypotheses framed in the research model that was developed in chapter three (see section 3.4).

Table 6.11: Results of regression analysis for outsourcing performance

Variables	Hypothesis number & prediction	Model 1		Model 2 (main effect model)		Model 3		Model 4		Model 5	
Intercept		5.476	(0.426)	7.195	(0.438)	5.997	(0.573)	5.074	(0.365)	7.036	(0.389)
Control Variables											
Firm size		-0.083	(0.123)	-0.040	(0.110)	-0.023	(0.106)	-0.012	(0.114)	-0.036	(0.097)
Industry type		-0.014	(0.083)	-0.051	(0.067)	-0.043	(0.064)	-0.036	(0.083)	-0.046	(0.059)
Type of activity being outsourced		-0.051	(0.071)	0.054	(0.058)	0.018	(0.057)	0.045	(0.060)	0.082	(0.051)
Asset specificity (AS)											
Buyers' asset specificity	**H1a (-) / H5a (+)**										
Human AS				-0.078	(0.058)	-0.084	(0.056)	-0.087	(0.058)	-0.053	(0.051)
Dedicated AS				-0.131†	(0.072)	-0.097	(0.071)	-0.104	(0.077)	-0.134*	(0.066)
Temporal AS				-0.261***	(0.054)	-0.208***	(0.055)	-0.236***	(0.059)	-0.297***	(0.049)
Procedural AS				-0.195**	(0.061)	-0.171**	(0.060)	-0.145*	(0.063)	-0.105†	(0.056)
Brand AS				-0.142*	(0.066)	-0.211**	(0.067)	-0.224**	(0.072)	-0.162*	(0.059)
Suppliers' asset specificity	**H1b (-) / H5b (+)**										
Human AS				0.200***	(0.059)	0.178**	(0.058)	0.174**	(0.061)	0.139*	(0.055)
Dedicated AS				0.187***	(0.049)	0.175**	(0.056)	0.173**	(0.051)	0.197***	(0.051)
Site specificity				-0.145**	(0.057)	-0.124*	(0.048)	-0.107*	(0.057)	-0.074†	(0.044)
Collaborative Ties						0.248**	(0.080)	0.206*	(0.088)		
Moderating effect of collaboration	**H4 (+)**										
Collab ties X Buyer's temporal AS								0.075	(0.048)		
Collab ties X Buyers' brand AS								-0.068	(0.057)		
Collab ties X Buyers' dedicated AS								0.109	(0.067)		
Collab ties X Buyers' procedural AS								0.010	(0.057)		
Collab ties X Buyers' human AS								0.009	(0.055)		
Collab ties X Suppliers' human AS								0.031	(0.057)		
Collab ties X Suppliers' dedicated AS								-0.034	(0.053)		
Collab ties X Suppliers' site specificity								0.035	(0.051)		
Reciprocal investment[b]	**H6 (+)**										
Buyers' temporal X Suppliers' site										0.083***	(0.021)
Buyers' dedicated X Suppliers' human										0.116**	(0.045)
Buyers' temporal X Suppliers' dedicated										0.074**	(0.022)
R^2		.007		.436		.476		.499		.540	
ΔR^2				.429		0.41		.063		.104	
ΔF				11.852***		9.626**		0.674		13.919***	

Notes: † p < .10; * p < .05; * * P < .01; * * * p < .001

[a] n=137. The coefficients reported are unstandardised estimates, with standard errors in parentheses.

[b] Model 5 was initially estimated including all 15 interaction terms. To conserve space, in Model 5 we only report the results obtained by including the three significant interactions found.

Table 6.12: Results in relation to the research hypotheses[2]

Theoretical perspective	Hypotheses	Results
TCT	**H1a:** *An increase in buyers' asset specificity across different dimensions of non re-deployable investments, in a given transactional outsourcing relationship, will negatively affect outsourcing performance.*	***Supported***
	H1b: *An increase in suppliers' asset specificity across different dimensions of non re-deployable investments, in a given transactional outsourcing relationship, will negatively affect outsourcing performance.*	***Partially supported*** *(site dimension)*
	H6: *Reciprocal non re-deployable investments in a given transactional outsourcing relationship will have a positive impact on outsourcing performance.*	***Partially supported*** *(supported in 3 interaction instances)*
Strategy-related literature	**H4:** *Collaborative ties in the buyer-supplier relationship will positively moderate the relationship between asset specificity [non-re-deployable investments] and outsourcing performance.*	***Rejected***
	H5a: *An increase in buyers' asset specificity across different dimensions of non re-deployable investments, in a given transactional outsourcing relationship, will positively affect outsourcing performance.*	***Rejected***
	H5b: *An increase in suppliers' asset specificity across different dimensions of non re-deployable investments, in a given transactional outsourcing relationship, will positively affect outsourcing performance.*	***Partially supported*** *(human and dedicated dimensions)*

An additional and potentially interesting result that was highlighted in the previous section is that, compared to suppliers' asset specificity, buyers' asset specificity accounted for more than double of the variance in outsourcing performance. Also interestingly, all the control variables (firm size, industry type, and type of activity being outsourced) were insignificant.

[2] As explained in section 3.4, hypothesis 2 and 3 were not tested as they fall outside the scope of this study.

6.6 Discussion

With reference to previous empirical work which touched upon areas that can be linked to the focus of this study, this section tries to discuss the findings of this research and offer logical explanations in relation to the obtained results. Discussions will be grouped into categories according to areas covered by hypothesis. Nevertheless, it is worth noting that since no other work has attempted to look at the relationship between asset specificity and outsourcing performance using a fine-tuned measurement disaggregated by buyers-suppliers asset specificity dimensions in a single study, comparison with previous empirical results could prove to be somewhat difficult.

6.6.1 Impact of buyers' asset specificity dimensions on outsourcing performance *(Hypothesis 1a and Hypothesis 5a)*

In sharp contrast to the third stream of SBT (H5a) and in accordance to the TCT prediction, our results found support for the hypothesised negative relationship between buyers' asset specificity and outsourcing performance (H1a). Indeed, with the exception of human asset specificity which was insignificant, all buyers' asset specificity dimensions that were tested were found to have a negative effect upon outsourcing performance. Our empirical backing of the detrimental effect of buyers' asset specificity on outsourcing performance, is consistent with the results obtained by Heide and Stump (1995), Poppo and Zenger (1998) and Artz (1999), who found a negative relationship between buyer's investment in specific assets and buyer-supplier transaction performance.

Unlike our research, however, the measurements employed in Heide and Stump (1995) and Artz (1999) were based on the aggregate effect of buyer's asset specificity with no attempt being made to evaluate the specific impact of individual asset specificity dimensions. In addition, the two above-mentioned studies were not constrained in their focus on outsourcing projects, having looked, instead, at the general performance of

a pure buyer-supplier transaction within manufacturing-related as opposed to service-related industries.

Whereas, in line with our study, Poppo and Zenger (1998) focused exclusively on outsourcing performance, their research failed to measure levels of asset specificity from both side of the dyad and, in addition, their empirical findings were not disaggregated by asset specificity dimensions.

While, we can confidently exclude the possibility of multicollinearity problems in our data (see section 6.2.2.3 in this chapter) or the existence of any lack of discriminant validity (see section 4.6.5.2 in chapter four), one possible explanation of the insignificant effect of human asset specificity could be the fact that this construct might have been captured by the procedural asset specificity dimension which seems to share characteristics pertaining to human asset specificity (organisational routines and workflows could be seen as latent components, see section 4.6.2.2 in chapter four).

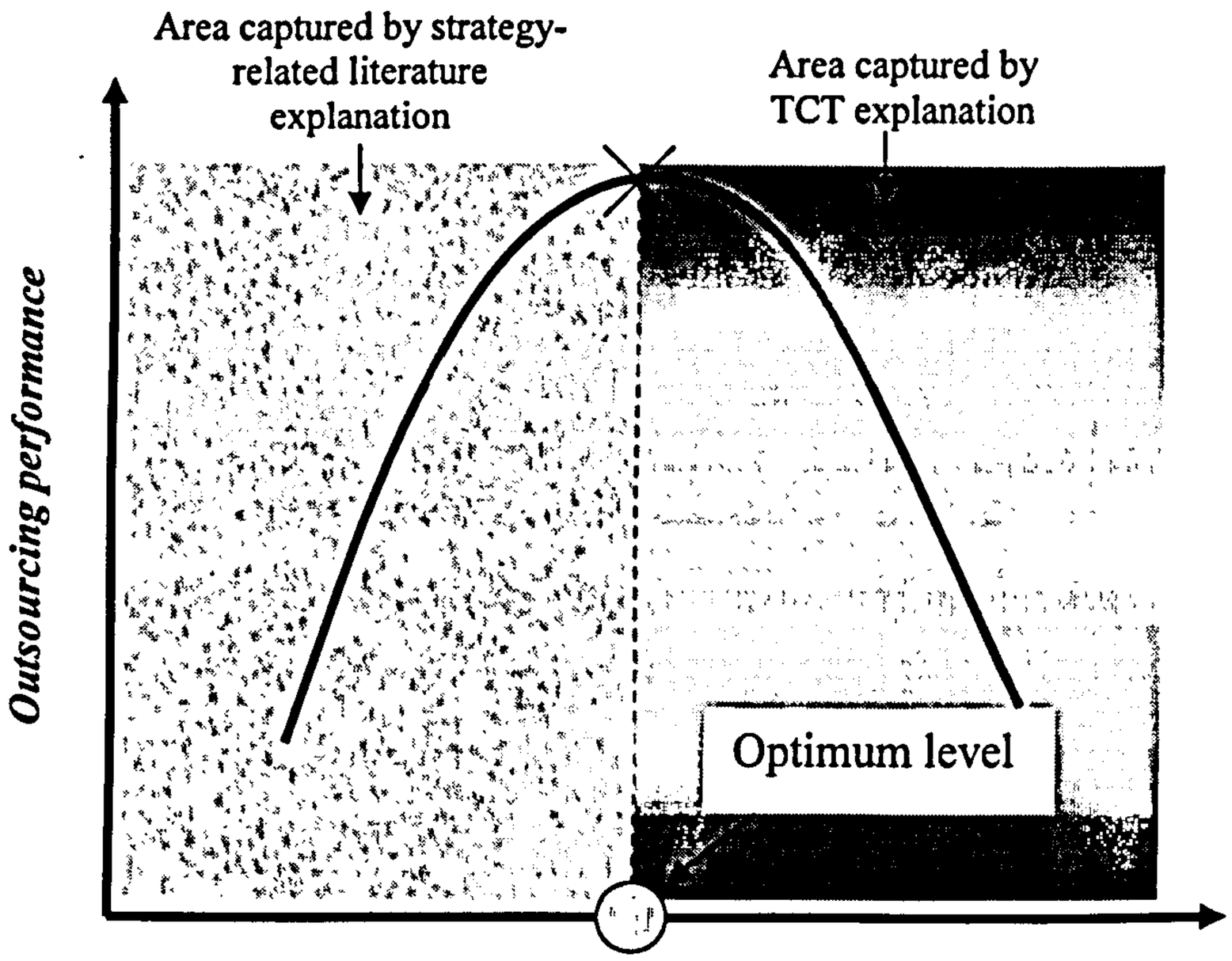
6.6.2 Impact of suppliers' asset specificity dimensions on outsourcing performance *(Hypothesis 1b and Hypothesis 5b)*

Unquestionably, the most important finding stemming from this study is the mixed results to Hypotheses 1b and 5b. While in accordance with TCT predictions (H1b), suppliers' site specific investments were found to have a negative effect on outsourcing performance (though only significantly so at the 10% level in Model 5), both suppliers' human and dedicated asset specificity dimensions consistently displayed positive and significant coefficients, partially supporting hypothesis 5b. In previous literature, Wang (2002) is alone in having found a positive relationship between asset specificity and the success of (software) outsourcing. Yet, in his study, he aggregated human and dedicated asset specificity into a single five-item construct, and, therefore, he did not examine the effect of each dimension of asset specificity. Besides, Wang (2002) made no distinction between

buyers and suppliers' asset specificity, and, hence, was unable to count for the potential effect of reciprocal investments made.

This mixed result in relation to the effect of suppliers' asset specificity upon outsourcing performance opens up the suggestion that there may exist an 'optimum' level of asset specificity that attracts / invites effective and efficient relationship between outsourcing buyers and suppliers, but beyond which, exposure becomes so pronounced that temptation to renege on outsourcing contract could prove to be too high to resist. Figure 6.6 provides a visual schematisation of the above suggestion.

Figure 6.6: Relationship between suppliers' asset specificity and outsourcing performance



As can be seen from Figure 6.6, this intuitive explanation seems to be able to accommodate the different emphases placed by TCT and strategy-related literature in relation to the effect of asset specificity upon outsourcing performance. Indeed, while the strategy perspective seems to have captured the part of the relationship between asset specificity and outsourcing performance as placed prior to the asset specificity optimum

level, the TCT explanation is corroborated by the dynamics that follow that optimum level.

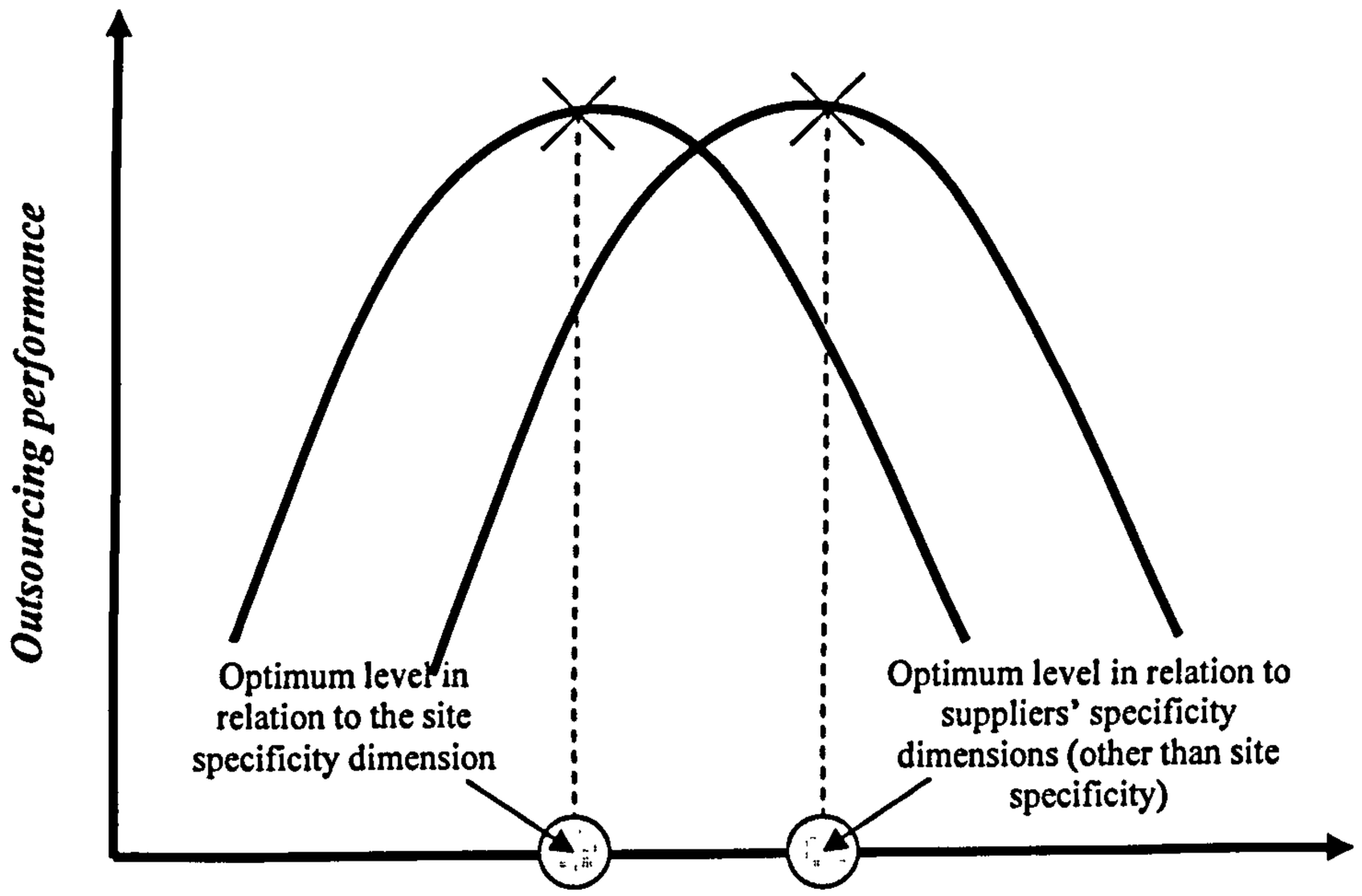
Given the above, one could question the reason why suppliers' site asset specificity, in particular, displayed a negative impact upon outsourcing performance while at the same time all other suppliers' asset specificity dimensions (precisely suppliers' human and dedicated asset specificity) were found to have a positive effect.

One possible explanation to the above phenomenon as rooted in the findings of this research could be that although all suppliers' asset specific investments are, by their very nature, dedicated to the particular requirements of the relationship, the 'optimum level' after which they begin to trigger opportunistic behaviour (temptation to renege on outsourcing contracts) to the detriment of outsourcing performance may vary across asset specificity dimensions due to the 'value' (cost) and 'non re-deployability' content embedded in them. Given their intrinsically limited 'value' and/or 'transfer cost' vis-à-vis other asset specificity dimensions (e.g. site specificity), relatively low levels of suppliers' human and dedicated asset specificity may represent levels of *'insufficient exposure'* to trigger opportunistic behaviour leading, instead, to a positive impact upon outsourcing performance. Only ample investments in such assets would, by taking asset specificity beyond the optimum level, invert the sign of the relationship between asset specificity and outsourcing performance as the buyer's individual gain from opportunistic behaviour would be perceived to outweigh the shared benefits from an improved outsourcing relationship.

As such, given their intrinsically high 'value' and 'non re-deployability' content, the optimum level after which suppliers' site specific investments lead to opportunistic behaviour to the detriment of outsourcing performance is likely to be lower than the one associated with suppliers' dedicated and human specific investments. Hence, even very low levels of suppliers' site specificity may be expected to take the relationship beyond the optimum level of required specific investment, resulting in a more immediate

negative effect on outsourcing performance. This idea is diagrammatically illustrated in Figure 6.7 which tries to offer a visual conceptualization of the hypothesised functional form of the relationship in question.

Figure 6.7: A hypothesised 'Optimum Level' of suppliers' asset specificity across dimensions



This 'optimum level' rationalisation of the research findings not only implies that the relationship between each dimension of asset specificity and outsourcing performance may be a non-constant function that takes the shape of an inverted U curve, it also suggests that the point at which opportunistic behaviour is activated varies according to the particular type of investment across both buyers and suppliers' asset specificity dimensions. Particularly, site specificity investment seems to imply a greater degree of hostage than the one inherited by human and dedicated asset specificity.

Finally, the fact that buyers' asset specificity accounted for more than twice the variance in outsourcing performance as compared to suppliers' asset specificity may also open the suggestion that the 'optimum level' in relation

to buyers' asset specificity dimensions are generally lower than those of suppliers. In other words, even extremely low level of non-redeployable investment made by the buyer side, could quickly take the relationship beyond the optimum point, with a more immediate negative effect on outsourcing performance, quicker than the effect that would be exerted by the same level of non-redeployable investment as made by suppliers. Such idea, however, awaits more data. If confirmed, this could serve as an explanation for the higher proportion of variance in outsourcing performance that was found to be caused by buyers as compared to the one caused by suppliers' asset specificity.

6.6.3 The moderating effect of collaborative ties on the relationship between asset specificity and outsourcing performance *(Hypotheses 4)*

The hypothesised moderating effect of collaborative ties on the relationship between asset specificity and outsourcing performance (H4) was not supported by our data. The finding of an insignificant moderating effect of collaborative ties across all dimensions of the relationship between asset specificity and outsourcing performance could be rationalised by postulating that asset specificity itself explains variance in crafting stronger relationships, as empirically found by Heide and John (1990), Anderson and Weitz (1992) and Heide and Stump (1995).

To probe this explanation using our data, we run a separate regression with collaborative ties as a dependent construct and buyers' and suppliers' asset specificity dimensions as independent variables (see Table 6.13).

TABLE 6.13

Results of standard regression analysis: The influence of buyers and suppliers' asset specificity on collaborative ties

Independent Variables	b[a]	SE	Beta[b]	T-Value	p-Value
Intercept	5.110	0.375		13.622	.000
Buyers' asset specificity					
HumB	0.023	0.064	0.033	0.362	.718
DediB	-0.138	0.078	-0.161	-1.772	.079
TempB	-0.224	0.059	-0.378	-3.834	.000
BrandB	0.319	0.069	0.464	4.601	.000
ProcdB	-0.084	0.067	-0.084	-1.261	.210
Suppliers' asset specificity					
HumS	0.070	0.063	0.101	1.111	.269
DediS	0.033	0.059	0.052	.562	.575
SiteS	-0.78	0.053	-.124	-1.470	.144
R^2	**.177**				
Adjusted R^2	.126				
N	137				

The results show that asset specificity does actually explain a significant variance in collaborative ties (17.7%) with both buyer's temporal asset specificity and brand capital significantly affecting collaborative ties. However, while temporal asset specificity negatively affected collaboration, brand capital was found to be positively related to collaborative ties. The latter could be explained by the fact that reputation, which is at the heart of brand capital, could actually be reciprocal in nature as any underperformance of the subcontractor could result in its own reputation being affected (Lamminmaki, 2005), leading to a greater degree of collaboration.

6.6.4 The effect of reciprocal investments on outsourcing performance *(Hypothesis 6)*

Hypothesis 6 was partially supported, as we found that in three (out of 15) cases tested, reciprocal investments had a significant positive effect on outsourcing performance (with the remaining interaction instances being found to be statistically insignificant). This result partially corroborates Williamson's (1983) suggestion that such offsetting investments should lead to increased interdependency between buyers and suppliers, which could in turn be at the origin of creating a safeguard mechanism (against potential opportunistic behaviour) in the form of mutual hostages. These results complement those obtained by Artz (1999), who used data from the manufacturing sector; though our disaggregated framework is more informative by additionally revealing which specific asset specificity dimensions display significant interactions. The fact that not all interaction instances had a significant impact on outsourcing performance perhaps reiterates the author's intuitive explanation regarding the existence of an optimum level of asset specificity beyond which opportunistic behaviour could be trigged unless specific investments by one party are reciprocated to the same extent by the other exchanging party.

CHAPTER SEVEN: CONCLUSIONS

7.1 Chapter overview

This chapter begins by providing a summary of the research findings, structured by research objectives. Following a synopsis of the contribution to knowledge of this research, the implications of the findings are explicitly highlighted from both the academic and the pragmatic perspectives. The chapter ends with a discussion of the limitations of this study and of profitable avenues for future work.

7.2 Summary of main findings

The initial mapping of the outsourcing literature revealed the scarcity of empirical studies that characterises the outcome oriented literature in general and the relationship between asset specificity and outsourcing performance in particular. The additional critical review that focused particularly on this area (chapter three) allowed the author to distil a number of theory-based hypotheses on the relationship between asset specificity and outsourcing performance. The extensive review and analysis of the past conceptualisations and measurements of the asset specificity construct assisted the author to accomplish the difficult task of developing a comprehensive modelling framework by which the construct could be operationalised and tested across a number of dimensions so as to meet the research objectives.

The first research objective was *to assess the effect of the various buyers' asset specificity dimensions on outsourcing performance*. The regression results revealed that buyers' investments account for almost 30% of variance in outsourcing performance. The finding of consistently negative coefficient of all the buyers' asset specificity dimensions provides empirical

backing to the TCT predictions in relation to the negative relationship between buyers' asset specificity and outsourcing performance.

The second objective of the thesis was *to assess the impact of various suppliers' asset specificity dimensions on outsourcing performance*. The results showed that the sign of the suppliers' asset specificity coefficient varies according to the type of specificity dimension examined. Whilst site specificity was found to negatively to affect outsourcing performance, both human and dedicated asset specificity dimensions were shown to exert a positive impact upon outsourcing performance. As such, while empirically backing the TCT predictive implications at the buyers' level of asset specificity, the research findings in relation to the suppliers asset specificity paved the way for the suggestion that the relationship between asset specificity and outsourcing performance may be of a form best represented by an inverted U-shaped curve, where there exists an 'optimum level' of asset specificity up to which outsourcing performance is positively affected and, beyond which, the relationship assumes negative connotations. The results may also imply that this 'optimum level' of specificity varies according to the particular type of investment across both buyers and suppliers' asset specificity dimensions.

The third objective was to add an empirical edge to the notion of reciprocal exposure by *empirically examining the effect of reciprocal asset specific, non-redeployable investments on the outsourcing performance*. In line with Artz (1999), the results of this study confirmed, in three interaction instances, the positive impact which reciprocal investments exert upon outsourcing performance.

The forth main objective of the thesis was *to establish whether collaborative ties can moderate the relationship between asset specificity and outsourcing performance*. While collaborative ties was found to exert a direct, positive influence outsourcing performance, the results did not support the hypothesis of any moderating effect on the relationship in question.

Another important finding of this thesis is the insignificant effect of the three control variables (firm size, industry type, and type of activity being outsourced). Although this result may well be sample dependent (especially given our relatively small sample), similar results (particularly in relation to firm size) appear to have been found in a number of related studies. For example, in their empirical investigation of the relationship between HR outsourcing and firm performance, Gilley *et al.* (2004) found no significant effect of firm size. A similar conclusion was reached by Gorzing and Stephan (2002) who found firm size to be of little relevance in explaining differences in performance among firms engaging in outsourcing.

7.3 Contribution to knowledge

This thesis makes several, significant contributions to knowledge.

First, although much work has already been done in relation to the determinants of outsourcing performance (for example, on the skills required for managing the outsourcing relationship and on the provider selection process), this thesis redirects attention to the crucial role which asset specificity plays in affecting outsourcing performance. By empirically demonstrating that asset specificity does indeed affect outsourcing performance, this research clearly shows that any future study examining outsourcing performance cannot afford to overlook the effect of asset specificity.

Second, the disaggregated approach for operationalising the asset specificity construct enabled the author to go beyond any previous empirical (outsourcing-related) study and assess the individual impact of each dimension of buyers and suppliers' asset specificity on outsourcing performance. In so doing, the thesis made a significant contribution to our existing knowledge by showing that the way in which asset specificity

affects outsourcing performance varies across buyers-supplier asset specificity dimensions. As such, the thesis also managed to respond to earlier calls made by Lohtia *et al.* (1994, p. 268) for engaging in a more comprehensive and refined disaggregated measurement of asset specificity, and confirmed their suggestion that research results based on TCT may be dependent on the specific dimension of transaction-specific assets examined.

Third, while complementing Artz's (1999) findings within the manufacturing sector, the disaggregated framework employed in this thesis offers more informative results by revealing which particular asset specificity dimensions interact with one another to positively affect outsourcing performance. In so doing, this research offered further empirical content to the hypothesis of reciprocal exposure by finding empirical support for its tenets in three interaction instances.

Finally, by rejecting the existence of any moderating effect that could stem from collaborative ties, our findings suggest that collaborative ties alone is in fact unable to neutralise any potential opportunistic expropriation from one party of the dyad in relation to the specific, non redeployable, investment made by the other party.

Collectively, the above-mentioned contributions significantly enrich our existing empirical knowledge regarding the TCT's implication for outsourcing performance in relationships characterised by the presence of transaction specific assets.

7.4 Research implications

To the author, it appears that the findings of this research have profound implications from the theoretical, methodological, and managerial perspectives.

From a theoretical perspective, although the author's intuitive explanation as to why some specificity dimensions appear to have a positive effect on outsourcing performance may be deemed as promising as other possible alternative explanations, the finding of different impacts of individual asset specificity dimensions on outsourcing performance makes in itself a significant contribution to our existing knowledge of the predictive power of TCT when applied to the question of the impact of asset specificity on outsourcing performance. The findings also serve as a clear illustration of the benefit of integrating both economic- and strategy-based theory in the analysis of the relationship between asset specificity and outsourcing performance.

From a methodological perspective, one important implication of our study concerns the approach by which future empirical research should operationalise the asset specifcity construct. Since outsourcing performance has been found to respond differently to different types of buyers and suppliers' non re-deployable investments, our findings have confirmed the empirical necessity to treat asset specifcity as more than a mere composite construct. Indeed, even when the measurement scale of asset specificity is developed drawing from items relating to different asset specificity dimensions, estimation of a single asset specificity coefficient would at best mask the individual effects on outsourcing performance of the different types of specific, non re-deployable investments that characterise the buyer-supplier relationships examined.

By shedding light on the various effects of each particular asset specificity dimension from both the buyer and the supplier's side of the dyad, the findings of this research also have implications that should be of interest to managers since, for example, they demonstrate that, by offsetting opportunistic tendencies, the presence of a mutual commitment to reciprocal, non re-deployable investments specifically dedicated to the outsourcing relationship enhances outsourcing performance. The research results also indicate that while not all dimensions of specific investments made by suppliers seem to be reciprocated by opportunistic behaviour

from the buyers, outsourcing providers should exercise particular caution when engaging in outsourcing relationships which specifically require site specific, non-redeployable investments since such investments seem to be more prone to prime opportunistic behaviour compared to other suppliers' asset specificity dimensions. In addition, managers should be aware that asset specificity does not necessarily hinder outsourcing performance. As the research findings suggest, this may well vary according to the level of the investment for each particular buyer-supplier asset specificity dimension within a given outsourcing relationship. Accordingly, it becomes paramount (though admittedly very difficult) for managers to try to estimate the acceptable level of opportunistic exposure beyond which opportunistic expropriation could be triggered.

However, the results of this research should be viewed in the light of the constraints of the study, such as the focus on few service-related industries, the failure to question both buyers and suppliers, as well as the consequent reliance on buyers' perception of suppliers' asset specificity.

7.5 Limitations and avenues for future research

Notwithstanding the contribution of the findings uncovered by this study, several limitations should be acknowledged. First, our data were limited to outsourcing relationships in four UK service–related industries, and this implies caution in generalising the findings. Accordingly, replication studies across different countries and sectors are encouraged.

Second, although our methodological approach allowed us to differentiate between specific, non-redeployable investments made by both buyers and suppliers, our data were solely based on the buyers' perception of the outsourcing relationship. While such an approach may represent a potential source of response bias, there is sufficient evidence in the extant empirical literature to suggest that buyers and suppliers hold consistent perceptions of the outsourcing relationship. This has become a standard

assumption underlying much of the empirical work in this area, an assumption generally seen as unproblematic (see, among others, Artz, 1999; Poppo and Zenger, 2002; Provan and Skinner, 1989; Saxton, 1997; Zaheer and Venkatraman, 1995). This should not, however, rule out the benefits of obtaining data from both sides of the dyad which would provide, perhaps, more accurate measures of suppliers' asset specificity and would enable the comparison of buyer-supplier's perceptions of the same phenomenon. Nevertheless, practicality, time constraints and lack of financial resources prevented the author from questioning both buyers and suppliers. Indeed, such a procedure would have involved initially sending questionnaires to buyers asking them to disclose the name of their outsourcing suppliers (an information which could be seen as highly sensitive and confidential) and, subsequently, sending a different questionnaire to those suppliers that were identified. This would not only have meant a lengthy and challenging process, but would also have reduced the final usable sample as the second set of questionnaires to be sent to suppliers would have been limited to the number of suppliers disclosed by respondents to the first questionnaire.

Third, this research relied on the perception of a single respondent from each company. Although the author can confidently reject any serious concerns in relation to single-informant bias (as demonstrated by both Harman's one factor test and the application of Podsakoff's *et al.* (2003) framework, see 5.10.6), the use of multiple respondents from within the same company would have improved the validity of organisation-level constructs (e.g. buyers' asset specificity) (Bagozzi and Phillips, 1982). However, for reasons associated with resource constraints, such a procedure was discarded at the research design stage.

There are additional caveats to be borne in mind when interpreting our findings. First, given the purpose of this study, our interest centred exclusively upon the impact of asset specificity on outsourcing performance yet many other factors (e.g. provider selection process, Masten, 1993; contract management, Lacity and Willcocks, 1998; Fowler

and Jeffs, 1998; skills involved in managing the outsourcing relationship, Madhok, 2002, Quinn and Hilmer, 1995; trust and communication quality, Mohr and Spekman, 1994) can be hypothesised to have explanatory power in the determination of outsourcing performance. Whilst a number of diagnostic checks and a relatively high R^2 value suggested an adequate model specification, future work should attempt to test the concomitant significance of other variables found in previous literature to play an important role in the success of outsourcing projects. Second, the inconsistent treatment of the relationship between asset specificity and outsourcing performance across various strands of the strategy literature coupled with *"obscure and often tautological definitions of key terms"* (Williamson, 1999, p. 1093) (e.g. core competence) forced the author to coin the nomenclature 'strategy-related literature' merely to distinguish it from the economic-based one. Despite the usefulness and necessity to draw attention to the distinction between the 'economic-based literature' (which builds upon TCT) and the 'strategy-related' one, the author does acknowledge that such a definitional simplification which subsumes various strands of the strategy-related literature under a single umbrella, could be seen as a misleading piece of shorthand. Third, while our results regarding the mixed effects of asset specificity dimensions on outsourcing performance have provided the author with grounds on which to speculate on the likely existence of an asset specificity optimum level beyond which opportunistic expropriation could be trigged, future work should try to further probe this intuitive albeit still untested rationalisation.

Although to ensure reliability and validity all measurement scales employed in this study were subjected to rigorous procedural and statistical testing, a number of items that were originally developed by the author during the course of this research (and hence had not been previously tested) could have been subjected to further testing through the use of confirmatory factor analysis. Since this study is one of the very first attempts to measure asset specificity across all of its various dimensions, exploratory factor analysis should suffice. However, future studies, using different samples,

are encouraged to further refine and confirmatory content to the measurement scales developed in the course of this research.

Furthermore, the operationalisation of outsourcing performance relied exclusively on perceptual qualitative measures. Since different firms may have different outsourcing motives, the additional inclusion of financial measures would have complemented the non-financial measures employed and would have resulted in a 'hybrid approach' that is more likely to capture the 'idiosyncratic' outsourcing motive which any two different organisations may have. Indeed, as highlighted by Parnell *et al.* (2006, p. 413), *"each organisation could succeed in accomplishing its* [outsourcing] *goal but may fail if evaluated on its accomplishment of the other organisation's* [outsourcing] *goal"* ('outsourcing' added). Nevertheless, it should be noted that asking for precise outsourcing-related financial data could be regarded as a challenging and complicated task for respondents. The release of such sensitive data could also be seen as highly confidential, which may lead to a lower response rate. Without asking for such precise financial data, this research has tried, however, to count for the potential 'idiosyncratic' outsourcing motives of different firms through the inclusion of a broad range of common outsourcing motives that could be seen as central to outsourcing performance.

Although it may also be deemed opportune to acknowledge potential concerns with a fairly low rate of return, low response rates for this kind of surveys are becoming increasingly common (e.g. Lepak *et al.*, 2003; Perez-Nordtvedt, *et al.* 2008) and our usable sample size seemed to prove sufficiently large to draw valid asymptotic inferences. Small sample bias increases the probability of a Type II error but, reassuringly, our results also present instances in which the null hypothesis was rejected. However, future studies employing a larger sample can perhaps provide us with a better picture regarding the effect of our control variables (firm size, industry type, and type of activity being outsourced). Given the number of interaction terms included, a larger sample would also enhance the validity of the moderating effect in relation to collaborative ties.

This research relied solely on data collected by means of questionnaires. A more reliable empirical basis could have been achieved by triangulating the data collected through the incorporation of focus groups before finalising the research model and hypotheses, or also through the use of follow-up interviews with a selected number of companies in order to further illuminate on the quantitative analysis conducted and, consequently, enhance the discussion of the research findings that were generated from the self-administered questionnaires. Both methods would have enabled the author to gain deeper insights of the specific organisational contexts and would have provided him with the opportunity to acquire a greater understanding of the issues underpinning firms' choices concerning asset specific investments. However, these triangulation procedures would have required further financial resources and would have obliged the author to obtain a new ethical approval. Time constraints and resource restrictions prevented the author to employ these triangulation procedures.

Finally, although the impact of asset specificity on outsourcing performance was estimated within a straightforward linear regression framework, the author is unable to exclude the possibility that the functional form of the relationship between asset specificity and outsourcing performance be of a non-linear nature, nor can he rule out the possibility that outsourcing performance itself may, under certain conditions, and over time, induce greater levels of asset specific investments by one or both of the parties of the outsourcing relationship. In these circumstances, the bias stemming from the linear approximation of the non-linearities of the 'true relationship' as well as reverse causality bias may seriously affect the reliability of estimated coefficients. To address these issues, a profitable avenue for future research would entail constructing a longitudinal dataset to test a structural inter-temporal model that would allow to establish both the non-linear, dynamic structure and the reverse causality properties of the relationship between asset specificity dimensions and outsourcing performance.

REFERENCES

Adler, T.R., Scherer, R.F., Barton, S.L. and Katerberg, R. (1998), "An Empirical Test of Transaction Cost Theory: Validating Contract Typology", *Journal of Applied Management Studies,* Vol. 7, No. 2, pp. 185-200.

Aerston, F. (1993), "Contracting out the Physical Distribution Function: a Trade-off between Asset Specificity and Performance Measurement", *International Journal of Physical Distribution and Logistics Management,* Vol. 23, No. 1, pp. 23-29.

Aiken, L.S. and West, S.G. (1991), *Multiple Regression: Testing and Interpreting Interactions.* Thousand Oaks, CA: Sage.

Akehurst, G. (1987), "The Economics of Services: an Introduction", *Service Industries,* Vol. 7, No. 4, pp. 1-11.

Alexander, M. and Young, D. (1996), "Strategic Outsourcing", *Long Range Planning,* Vol. 29, No. 1, pp. 116-119.

Allison, P.D. (1999), *Multiple Regression: a Primer.* London: Pine Forge Press.

Anderson, E. (1985), "The Salesperson as Outside Agent or Employee: a Transaction Cost Analysis", *Marketing Science,* Vol. 4, No. 3, pp. 234-254.

Anderson, J.C. (1987), "An Approach for Confirmatory Measurement and Structural Equation Modelling of Organisational Properties", *Management Science,* Vol. 33, No. 4, pp. 525-541.

Anderson, E.L. and Coughlan, A.T. (1987). "International Market Entry and Expansion via Independent or Integrated Channels of Distribution", *Journal of Marketing,* Vol. 51, pp. 71-82.

Anderson, J.C. and Narus, J.A. (1990), "A Model of Distributor's Firm and Manufacturer Firm Working Partnerships", *Journal of Marketing,* Vol. 54, No. 1, pp. 42-58.

Anderson, E. and Schmittlein, D. (1984), "Integration of the Sales Force: an Empirical Investigation", *Rand Journal of Economics,* Vol. 15, No. 3, pp. 385-395.

Anderson, E. and Weitz, B. (1992), "The Use of Pledges to Build and Sustain Commitment in Distribution Channels", *Journal of Marketing Research,* Vol. 29, pp. 18-34.

Ang, S. and Cummings, L.L. (1997), "Strategic Response to Institutional Influences on Information Systems Outsourcing", *Organization Science,* Vol. 8, No. 3, pp. 235-256.

Ang, S. and Straub, D.W. (1998), "Production and Transaction Economies and IS Outsourcing: a Study of the U.S. Banking Industry", *MIS Quarterly,* Vol. 22, No. 4, pp. 535-552.

Argyres, N. and Liebeskind, J. (1999), "Contractual Commitments, Bargaining Power, and Governance Inseparability: Incorporating History into Transaction Cost Theory", *Academy of Management Review,* Vol. 24, No. 1, pp. 49-63.

Armstrong, J.S. & Overton, T.S. (1977), "Estimating non-Response Bias in Mail Surveys", *Journal of Marketing Research*, Vol. 16 (August), pp. 396-402.

Artz, K.W. (1999), "Buyer-Supplier Performance: the Role of Asset Specificity, Reciprocal Investments and Relational Exchange", *British Journal of Management,* Vol. 10, 113-126.

Ashill, N.J. and Jobber, D. (2005), "Measuring Perceived Environmental Uncertainty: Scale Development and Validation", *Working Paper No. 05/12*, March, Bradford University School of Management.

Aubert, B.A., Rivard, S. and Paltry, M. (1996), "A Transaction Cost Approach to Outsourcing Behavior: Some Empirical Evidence", *Information and Management,* Vol. 30, No. 2, pp. 51-64.

Aubert, B.A., Patry, M. and Rivard, S. (1998), "Assessing the Risk of IT Outsourcing", *Proceedings of the 32nd Hawaii International Conference on System Sciences, 685-691.*

Aubert, B.A., Dussault, S., Patry, M. and Rivard, S. (1999), "Managing the Risk of IT Outsourcing", *Proceedings of the 32nd Hawaii International Conference on System Sciences.*

Aubert, B., Houde, J. F., Paltry, M. and River, S. (2003), "Characteristics of IT Outsourcing Contracts", *Proceedings of the 36th Hawaii International Conference on System Sciences.* Available at: http://www.hicss.hawaii.edu/HICSS36/HICSSpapers/OSISO07.pdf. Accessed on 02/11/2005.

Axelrod, R. (1984), *The Evolution of Cooperation,* New York: Basic Books.

Axelsson, B. and Easton, G. (1992) (eds), *Industrial Networks: a New View of Reality.* London: Routledge.

Babbie, E.R. (1973), *Survey Research Methods,* CA: Wadsworth

Baden-Fuller, C., Hunt, B.N. and Targett, D. (2000), "Outsourcing to Outmanoeuvre", *European Management Journal*, Vol. 18, No. 3, pp. 285-295.

Bagozzi, R.P. and Philips, L.W. (1982), "Representing and Testing Organizational Theories: a Holistic Construal", *Administrative Science Quarterly,* Vol. 27, September, pp. 459- 489.

Baker, T.L. (1999), *Doing Social Research* (3rd Ed.). New York: McGraw-Hill Inc.

Baker, G., Gibbons, R. and Murphy, K. (2002), "Relational Contracts and the Theory of the Firm", *Quarterly Journal of Economics*, Vol. 117, pp. 39-83.

Barney, J.B. (1991), "Firm Resources and Sustained Competitive Advantage", *Journal of Management,* Vol. 17, No. 1, pp. 99-120.

Barney, J.B. and Hesterly, W. (1996), "Organizational Economics: Understanding the Relationship between Organizations and Economic Analysis". In Clegg, S. R., Hardy, C. and Nord, W. R. (eds), *Handbook of Organization Studies.* London: Sage.

Bartell, S.M. (1998), "Information Systems Outsourcing: a Literature Review and Agenda for Research", *International Journal of theory and Behaviour,* Vol. 1, No. 1, pp. 17-44.

Barthelemy, J. and Quelin, B.V. (2002), "Competence, Specificity and Outsourcing: Impact on the Complexity of the Contract", *Paper submitted to the 2002 Academy of Management Conference.* Available at: http://www.hec.fr/hec/fr/professeurs_recherche/upload/cahiers/759quelinAOM%2001%202002.pdf, Accessed on 02/11/2005.

Batista, G.A.P.A. and Monard, M.C. (2003), "An Analysis of Four Missing Data Treatment Methods for Supervised Learning", *Applied Artificial Intelligence,* Vol. 17, No. 5/6, pp. 519-533.

Benn, I. and Pearcy, J. (2002), "Strategic Outsourcing: Exploiting the Skills of Third Parties. London: Hodder and Stoughton.

Benson, J. and Leronimo, N. (1996), "Outsourcing Decisions: Evidence from Australia-based Organisations", *International Labour Review,* Vol. 135, No. 1, pp. 59-73.

Benson, J. and Litter, G. (2002), "Outsourcing and Workforce Reductions: an Empirical Study of Australian Organizations", *Asia Pacific Business Review,* Vol. 18, No. 3, pp. 16-30.

Ben-Zion, U. and Shalit, S.S. (1975), "Size, Leverage, and Dividend Record as Determinants of Equity Risk", *Journal of Finance,* Vol. 30, September, pp.

Bertolini, M., Bevilacqua, M., Braglia, M. and Frosolini, M. (2004), "An Analytical Method for Maintenance Outsourcing Service Selection", *International Journal of Quality and Reliability Management,* Vol. 21, No. 7, pp. 772-788.

Bettis, R.A., Bradley, S.P. and Hamel, G. (1992), "Outsourcing and the Industrial Decline", *Academy of Management Executive,* Vol. 6, No. 1, pp. 7-21.

Blaikie, N. (1993), *Approaches to Social Enquiry,* Cambridge: Polity Press.

Blaxter, L., Hughes, C. and Malcolm, T. (2001), *How to Research.* Buckingham: Open University Press.

Blumberg, D.F. (1998), "Strategic Assessment of Outsourcing and Downsizing in the Service Market", *Managing Service Quality,* Vol. 8, No. 1, pp. 5-18.

Blumberg, B., Cooper, D.R., and Schindler, P.S. (2005), *Business Research Methods,* Maidenhead: McGraw-Hill Education.

Bohrnstedt, G.W. (1970), "Reliability and Validity Assessment in Attitude Measurement", in Summers, G.F. (Ed), *Attitude Measurement,* Chicago: Rand McNally.

Bowman, C. and Faulkner, D. (1997), *Competitive and Corporate Strategy.* London: Irwin.

Brehm, J.W. (1966), *A Theory of Psychological Reactance.* New York: Academic Press. Cited in Joshi, A.W. and Arnold, S.J. (1997), "The Impact of Buyer Dependence on Buyer Opportunism in Buyer-Supplier Relationships: the Moderating Role of Relational Norms", *Psychology and Marketing,* Vol. 14, No. 8, pp. 823-845.

Brouthers, K.D. and Brouthers, L.E. (2003), "Why Service and Manufacturing Entry Mode Choices Differ: the Influence of Transaction Cost Factors, Risk and Trust", *Journal of Management Studies,* Vol. 40, No. 5, pp.1179-1204.

Brown, T. and Potoski, M. (2005), "Transaction Costs and Contracting: the Practitioner Perspective", *Public Performance and Management Review,* Vol. 28, No. 3, pp. 326-351.

Brown, T.E., Davidsson, P. and Wiklund, J. (2001), "An Operationalization of Stevenson's Conceptualization of Entrepreneurship as Opportunity-Based Firm Behavior", *Strategic Management Journal,* Vol. 22, pp. 953-968.

Bryman, A. and Bell, E. (2003), *Business Research Methods,* Oxford: Oxford University Press.

Bucklin, L. P. and Sengupta, S. (1993), "Organizing Successful Co-Marketing Alliances", *Journal of Marketing,* Vol. 57, No. 2, pp. 32-46.

Burell, B. and Morgan, G. (1979), *Sociological Paradigms and Organisational Analysis.* UK: Heinemann.

Buvik, A. and Anderson, O. (2002), "The Impact of Vertical Coordination on Ex Post Transaction Costs in Domestic and International Buyer-Seller Relationships", *Journal of International Marketing,* Vol. 10, No. 1, pp. 1-24.

Campbell, D.T. (1960), "Recommendations for APA Test Standards Regarding Construct, Trait, or Discriminant Validity", *American Psychologist,* Vol. 15 (August), pp. 546-553. Cited in Peter, J.P. (1981), "Construct Validity: a Review of Basic Issues and Marketing Practices", *Journal of Marketing Research,* Vol. 18, May, pp. 133-145.

Campbell, D.T. and Fiske, D.W. (1959), "Convergent and Discriminant Validity by the Multitrait-Multimethod Matrix", *Psychological Bulletin,* Vol. 59, (March), pp. 81-105.

Campbell, J. (2002), "Book Review 'Understanding Management Research: an Introduction to Epistemology'", *Organisational Studies,* Vol. 23, No. 3, pp. 479-481.

Canez, L.E., Platts, K.W. and Probert, D.R. (2000), "Developing a Framework for Make-or-Buy Decisions", *International Journal of Operations and Production Management,* Vol. 20, No. 11, 1313-1330.

Cattell, R.B. (1966), "The Scree Test for the Number of Factors". *Multivariate Behavioral Research,* Vol. 1, pp. 245-276.

Cheon, M.J., Grover, V. and Teng, J.T.C. (1995), "Theoretical Perspectives on the Outsourcing of Information Systems", *Journal of Information Technology,* Vol. 10, pp. 209-219.

Chesbrough, H. W. and Teece, D. J. (1996), "Organising for Innovation: When is Virtual Virtuous?" *Harvard Business Review,* Vol. 80, No. 8, pp. 127-135.

Chiles, T.H. and McMackin, J.F. (1996), "Integrating Variable Risk Preferences, Trust, and Transaction Cost Economics", *The Academy of Management Review,* Vol. 21, No. 1, pp. 73-99.

Chun, Y. (2004), "The Impact of Electronic Commerce on Buyer-Supplier Relationships in the Korean Electronics Industry", *PhD Thesis,* The University of Leeds.

Churchill, G.A. (1979), "A Paradigm for Developing Better Measures of Marketing Constructs", *Journal of Marketing Research,* Vol. XVI, February, pp. 64-73.

Churchill, G.A. (1999), *Marketing Research: Methodological Foundations,* Chicago: Dryden Press.

Coase, R. (1988), "The Nature of the Firm: Influence", *Journal of Law, Economics, and Organization,* Vol. 4, pp. 33-47.

Coase, R.H. (1937), "The Nature of the Firm", *Economica,* Vo. 4, pp. 386-405.

Coff, R. (2003), "Building Wars over R&D-Intensive Firms: Knowledge, Opportunism, and the Market for Corporate Control", *Academy of Management Journal,* Vol. 46, No. 1, pp. 74-85.

Collis, J. and Hussey, R. (2003), *Business Research: a Practical Guide for Undergraduate and Postgraduate Students.* New York: Palgrave MacMillan.

Comrey, A.L and Lee, H.B. (1992), *A First Course in Factor Analysis* (2nd Ed). Hillsdale, NJ: Erlbaum Associates.

Conference Board (2004), *"HR Outsourcing: Benefits, Challenges and Trends"* 15th April. Available at www.conference-board.org. Accessed on 22/11/2005.

Conner, K.R. (1991), "A Historical Comparison of Resource-Based View and Five Schools of Thought within Industrial Organization Economics: Do We Have a New Theory of the Firm?" *Journal of Management*; Vol. 17, No. 1, pp.121-154.

Conner, K.R. and Prahalad, C.K. (1996), "A Resource-Based Theory of the Firm: Knowledge versus Opportunism", *Organization Science,* Vol. 7, No. 5, pp. 477-501.

Costa, C. (2001), "Information Technology Outsourcing in Australia: a Literature Review", *Information Management and Computer security,* Vol. 9, No. 5, pp. 213-224.

Cox, A. (1996), "Relational Competence and Strategic Procurement Management: Towards an Entrepreneurial and Contractual Theory of the Firm", *European Journal of Purchasing and Supply Management,* Vol. 2, No. 1, pp. 57-70.

Creswell, J.W. (1994), *Research Design: Qualitative and Quantitative Approaches.* London: Sage Publications.

Cronbach, L.J. (1971), "Test Validation", in Thorndike, R.L. (ed), *Educational Measurement,* Washington DC: American Council on Education. Cited in Peter (1981).

Cronk, J. and Sharp, J (1995), "The Framework for Deciding What to Outsource in Information Technology", *Journal of Information Technology,* Vol. 10, pp. 259-267.

Cross, J. (1995), "IT Outsourcing: British Petroleum", *Harvard Business Review,* Vol. 73, No. 3, pp: 94-102.

Cycyota, C. and Harrison, D.A. (2006), "What (not) to Expect When Surveying Executives: a Meta-Analysis of Top Manager Response Rates and Techniques over Time", *Organizational Research Methods,* Vol. 9, No. 2, pp. 133-160.

Dancey, C.P. and Reidy, J. (2004), *Statistics without Maths: Using SPSS for Windows,* Harlow: Pearson Education Ltd.

David, R.J. and Han, S.K. (2004), "A Systematic Assessment of the Empirical Support for Transaction Cost Economics", *Strategic Management Journal,* Vol. 25, No. 1, pp. 39-58.

De Vaus, D. (2002), *Surveys in Social Research,* Australia: Allen & Unwin.

DeVellis, R.F. (1991), *Scale Development: Theory and Applications. Newbury Park, CA: Sage.*

De Vita, G. and Wang, C. L. (2006), "The Development of Outsourcing Theory and Practice: a Taxonomy of Outsourcing Generations". In Kehal. H.S. and Singh, V.P. (eds), *Outsourcing and Offshoring in the 21st Century: a Socio-Economic Perspective* (Chapter1, p. 1-17). US: Idea Group Inc.

Deegan, C. (1997), "Efficient Management Remuneration Plan Design: a Consideration of Specific Human Capital Investment", *Accounting and Finance,* Vol. 37, No. 1, pp. 1-40.

Dekkers, R. (2000), "Decision Models for Outsourcing and Core Competencies in Manufacturing", *International Journal of Production Research,* Vol. 38, No. 17, pp. 4085-4096.

Di Romualdo, A. and Gurbaxani, V. (1998), "Strategic Intent for IT Outsourcing", *Sloan Management Review,* Vol. 39, No. 4, pp. 67-80.

Dibbern, J., Goles, T., Hirschheim, R. and Jayatilaka, B. (2004), "Information Systems Outsourcing: a Survey and Analysis of the Literature", *ACM SIGMIS Database,* Vol. 35, No. 4, pp. 6-102.

Dibbern, J., Wynne, W.C. and Heinzl, A. (2005), "The Impact of Human Asset Specificity on the Sourcing of Application Services", *The 13th European Conference of Information Systems: Regensburg* (ECIS paper). Available at: http://is.lse.ac.uk/asp/aspecis/20050144.pdf, accessed on 19/11/2005.

Dickmann, M. and Tyson, S. (2005), "Outsourcing Payroll: Beyond Transaction-Cost Economics", *Personnel Review,* Vol. 34, No. 4, pp. 451-467.

Dillman, D.A. (2000), *Mail and Internet Surveys: the Tailored Design Method,* Canada: John Wiley & Sons, Inc.

Dillman, D.A., Eltinge, J.L., Groves, R.M. and Little, R.J.A. (2002), *Survey Nonresponse,* New York: Wiley.

Downey, J.M. (1995), "Risks of Outsourcing – Applying Risk Management Techniques to Staffing Methods", *Facilities,* Vol. 13, No. 9/10, pp. 38-44.

Dragonetti, N.C., Dalsace, F. and Cool, K. (2003), "A Comparative Test of the Efficiency, Focus, and Learning Perspectives of Outsourcing". Available at: http://www.hec.fr/hec/fr/professeurs_recherche/upload/cahiers/CR776.pdf Accessed on: 09/11/2005.

Dubois, A. and Gadde, L.E. (2002), "Systematic Combining: an Abductive Approach To Case Research", *Journal of Business Research,* Vol. 55, No. 7, pp. 553-560.

Due, R.T. (1992), "The Real Costs of Outsourcing". *Information Systems Management,* Winter, pp. 78-81.

Duncan, N.B. (1998), "Beyond Opportunism: a Resource-Based View of Outsourcing Risk", *Proceeding of the 31st Annual Hawaii International Conference on System Sciences.*

Dwivedi, Y.K., Choudrie, J. and Brinkman, W.P. (2006), "Development of a Survey Instrument to Examine Consumer Adoption of Broadband", *Industrial Management & Data Systems,* Vol. 106, No. 5, pp. 700-718.

Dyer, J.H. (1996), "Specialized Supplier Networks as a Source of Competitive Advantage: Evidence the Auto Industry", *Strategic Management Journal,* Vol. 17, No. 4, pp. 532-550.

Dyer, J.H. and Ouchi, W.G. (1993), "Japanese-Style Partnerships: Giving Companies a Competitive Edge", *Sloan Management Review,* Vol. 35, No. 1, pp. 51-63.

Dyer, J.H. and Sing, H. (1998), "The Relational View: Cooperative Strategy and Sources of Inter-organisational Competitive Advantage", *Academy of Management Review,* Vol. 23, No. 4, pp. 660-679.

Earl, M.J. (1996), "The Risks of Outsourcing", *Sloan Management Review,* Vol. 37, No. 3, pp. 26-32.

Easterby-Smith, M., Thorpe, R. and Lowe, A. (2002), *Management Research: an Introduction* (2nd ed). London: Sage.

Edwards, P., Roberts, I., Clarke, M., DiGuiseppi, C., Pratap, S., Wentz, R. and Kwan, I. (2002), "Increasing Response Rates to Postal Questionnaires: Systematic Review", *British Medical Journal,* Vol. 324, May, pp. 1183-1191.

Eisenhardt, K.M. and Martin, J.A. (2000), "Dynamic Capabilities: What are They?, *Strategic Management Journal,* Vol. 21, No. 10/11, pp. 1105-1121.

Eisenhardt, K.M. and Schoonhoven, C.B. (1996), "Resource-Based View of Strategic Alliance Formation: Strategic and Social Effects in Entrepreneurial Firms", *Organization Science*, Vol. 7, No. 2, p136-150.

Elliot, V. (1995), "Outsourcing without Risk", *Journal of Property Management,* Jan-Feb, pp. 40-41.

Ellram, L.M. and Carr, A. (1994), "Strategic Purchasing: a History and Review of the Literature", *International Journal of Purchasing and Materials Management,* Vol. 30, No. 2, pp. 9-18.

Elmuti, D. and Kathawala, Y. (2000), "The Effect of Global Outsourcing Strategy on Participants' Attitudes and Organisational Effectiveness", *International Journal of Manpower,* Vol. 21, No. 2, pp. 112-128.

Elmuti, D., Kathawala, Y. and Monippallil, M. (1998), "Outsourcing to Gain a Competitive Advantage", *Industrial Management,* Vol. 40, No. 3, pp. 20-24.

Emanuel, J.M. and Bramble, W.J. (1989), *Understanding and Conducting Research,* New York: McGraw-Hill.

Embleton, P.R. and Wright, P.C. (1998), "A Practical Guide to Successful Outsourcing", *Empowerment in Organizations,* Vol. 6, No. 3, pp. 94-106.

Erramilli, M.K. and Rao, C.P. (1993), "Service Firms' International Entry-mode Choice: a Modified Transaction-Cost Analysis Approach", *Journal of Marketing,* Vol. 57, No. 3, pp. 19-38.

Espino-Rodriguez, T.F. and Padron-Robaina, V. (2006), "A Review of Outsourcing from the Resource-Based View of the Firm", *International Journal of Management Reviews,* Vol. 8, No. 1, pp. 49-70.

Fawcett, B. and Hearn, J. (2004), "Researching Others: Epistemology, Experience, Standpoints and Participation", *International Journal of Social Research Methodology,* Vol. 7, No. 3, pp. 201-218.

Fill, C. and Visser, E. (2000), "The Outsourcing Dilemma: a Composite Approach to the Make-or-Buy Decision", *Management Decision,* Vol. 38, No. 1, pp. 43-50.

Finlay, P.N. and King, R.M. (1999), "IT Outsourcing: a Research Framework", *International Journal of Technology Management,* Vol. 17, No. 1-2, pp. 109-128.

Fisher, S. (1977), "Long-term Contracting, Sticky Prices, and Monetary Policy: Comment", *Journal of Monetary Economics,* Vol. 3, No. 3, pp. 305-316.

Flynn, L.R. and Pearcy, D. (2001), "Four Subtle Sins in Scale Development: Some Suggestions for Strengthening the Current Paradigm", *International Journal of Market Research,* Vol. 43, No. 4, pp. 409-423.

Foss, N.J. (1996), "Knowledge-Based Approaches to the Theory of the Firm: Some Critical Comments", *Organization Science,* Vol. 78, September-October, pp. 470-476.

Foster, J. (2000), "From Simplistic to Complex Systems in Economics", *Cambridge Journal of Economics,* Vol. 29, No. 6, pp. 873-892.

Fowler, A. and Jeffs, B. (1998), "Examining Information Systems Outsourcing: a Case Study from the United Kingdom", *Journal of Information Technology,* Vol. 13, No. 2, pp. 111-126.

Fowler, F. G. (2002), *Survey Research Methods,* Newbury Park, Calif.: Sage.

Fox, J. (1991) *Regression Diagnostics: an Introduction*. Newbury Park, CA.: Sage.

Franceschini, F., Galetto, M., Pignatelli, A. and Varetto, M. (2003), "Outsourcing: Guidelines for a Structured Approach", *Benchmarking: An International Journal,* Vol. 10, No. 3, pp. 246-260.

Frankel, R., Naslund, D. and Bolumole, Y. (2005), "The 'White Space' of Logistics Research: a Look at the Role of Methods Usage", *Journal of Business Logistics*, Vol. 26 No.2, pp.185-209.

Gable, G.G. (1994), "Integrating Case Study and Survey Research Methods: an Example in Information Systems", *European Journal of Information Systems,* Vol. 3, No. 2, pp. 112-126.

Gagnon, R.J. (1982), "Empirical Research: the Burdens and the Benefits", *Interfaces,* Vol. 12, No. 4, pp. 98-102.

Gambetta, D. (1988), *Trust: Making and Breaking Cooperative Relations.* Oxford: Basil Blackwell. Cited in Williamson, O.E. (1999), "Strategy Research: Governance and Competence Perspectives", *Strategic Management Journal,* Vol. 20, No.12, pp. 1087-1108.

Gatignon, H. and Anderson, E. (1988), "The Multinational Corporation's Degree of Control over Foreign Subsidiaries: an Empirical Test of a Transaction Cost Explanation", *Journal of Law, Economics, and Organization,* Vol. 4, No. 2, pp. 305-336.

George, D. and Mallery, P. (1995), *SPSS/PC + Step by Step: a Simple Guide and Reference.* Belmont, CA: Wadsworth.

Ghani, F.A. and Khan, J.H. (2004), "Network Relationships and Asset Specificity in Pakistan Automotive Industry", *Journal of the Asia Pacific Economy,* Vol. 9, No. 1, pp. 85-100.

Gilley, K.M., Greer, C.R. and Rasheed, A.A. (2004), "Human Resource Outsourcing and Organisational Performance in Manufacturing Firms", *Journal of Business Research,* Vol. 57, No. 3, pp. 232-240.

Gilley, K.M. and Rasheed, A. (2000), "Making More by Doing Less: an Analysis of Outsourcing and its Effects on Firm Performance", *Journal of Management,* Vol. 26, No. 4, pp. 763-790.

Gonzalez, R., Gasco, J. and Llopis, J. (2005), "Information Systems Outsourcing Success Factors: a Review and Some Results", *Information Management and Computer Security,* Vol. 13, No. 5, pp. 399-418.

Goodman, P.S., Fichman, M., Lerch, F. and Snyder, P.R. (1995), "Customer-Firm Relationships, Involvement, and Customer Satisfaction", *Academy of Management Journal,* Vol. 38, No. 5, pp. 1310-1324.

Gorzing, B. and Stephan, A. (2002), "Outsourcing and Firm-Level Performance", *German Institute of Economic Research (DIW Berlin),* discussion paper No. 309, p1-23. Available at: http://www.warwick.ac.uk/res2003/papers/Gorzig.pdf

Grant, R.B. (1996), "Towards a Knowledge-Based Theory of the Firm", *Strategic Management Journal,* Vol. 17, No. 109-122.

Grant, R.M. and Baden-Fuller, C. (2004), "A Knowledge Accessing Theory of Strategic Alliances", *Journal of Management Studies,* Vol. 41, No. 1, pp. 61-84.

Greaver, M.F. (1999), *Strategic Outsourcing: a Strategic Approach to Outsourcing Decisions and Initiatives.* New York: Amacom.

Greer, C.R., Youngblood, S.A., and Gray, D.A. (1999), "Human Resource Management Outsourcing: the Make or Buy Decision", *Academy of Management Executive,* Vol. 13, No. 3, pp. 85-96.

Greer, C.R. and Ireland, T.C. (1992), "Organizational and Financial Correlates of a Contrarian Human Resource Investment Strategy", *Academy of Management Journal,* Vol. 35, pp. 956-984.

Grover, V., Cheon, M.J. and Teng, J.T.C. (1996), "The Effect of Service Quality and Partnership on the Outsourcing of Information Systems Functions", *Journal of Management Information Systems,* Vol. 12, No. 4, pp. 89-116.

Guadagnoli, E. and Velicer, W.F. (1988), "Relation of Sample Size to the Stability of Component Patterns", *Psychological Bulletin,* Vol. 103, pp. 265-275.

Gujarati, D.N. (1988), *Basic Econometrics,* 2nd ed. New York McGraw-Hill Book Company.

Gupta, N. (1980), "Some Alternative Definitions of Size", *Academy of Management Size,* Vol. 23, No. 4, pp. 759-766.

Gupta, U.G. and Gupta, A. (1992), "Outsourcing the IS Function: Is It Necessary for Your Organization?", *Information Systems Management,* Vol. 9, No. 3, pp. 44-50.

Gurchiek, K. (2005), "Record Growth in Outsourcing of HR Functions", *HR Magazine,* Vol. 50, No. 6, pp. 35-38.

Hair, J.F., Anderson, R.E., Tatham, R.L., Black, W.C. (1998), *Multivariate Data Analysis,* New Jersey: Prentice Hall.

Hair, J.F., Babin, B., Money, A.H. and Samouel, P. (2003), *Essentials of Business Research,* New York: Wiley.

Håkansson, H. and Snehota, I. (1995) (eds), *Developing Relationships in Business Networks*, London, UK: Routledge.

Hamel, G. and Prahalad, C.K. (1990), "The Core Competence of the Corporation", *Harvard Business Review,* Vol. 68, No. 3, pp. 79-91.

Hammersley, M. (1996), "The Relationship between Qualitative and Quantitative Research Paradigm Loyalty versus Methodological Eclecticism". In Richardsonm J.T.E. (ed.) *Handbook of Qualitative Research Methods for Psychological and the Social Sciences.* British Psychological Society: Leicester.

Hancox, M. and Hackney, R. (2000), "IT Outsourcing: Frameworks for Conceptualising Practice and Perceptions", *Information Systems Journal,* Vol. 10, No. 3, pp. 217-237.

Hannan, M. and Freeman, J. (1989), *Organizational Ecology.* Cambridge: Harvard University Press.

Harman, H.H. (1976), *Modern Factor Analysis,* 3rd ed, Chicago: University of Chicago Press.

Heeler, R.M. and Ray, M.L. (1972), "Measure Validation in Marketing", *Journal of Marketing Research,* Vol. 9, No. 4, pp. 361-370.

Heide, J.B. and John, G. (1988), "The Role of Dependence Balancing in Safeguarding Transaction-Specific Assets in Conventional Channels", *Journal of Marketing,* Vol. 52, No. 1, pp. 20-35.

Heide, J.B. and John, G. (1990), "Alliances in Industrial Purchasing: the Determinants of Joint Action in Buyer-Supplier Relationships", *Journal of Marketing Research,* Vol. 27, No. 1, pp. 24-36.

Heide, J.B. and John, G. (1992), "Do Norms Matter in Marketing Relationships?", *Journal of Marketing,* Vol. 56, No. 2, pp. 32-44.

Heide, J.B. and Miner, A.S (1992), "The Shadow of the Future: Effects of Anticipated Interaction and Frequency of Contact on Buyer-Seller Cooperation", *Academy of Management Journal*, Vol. 35, No.2, pp. 265-291.

Heide, J.B. and Stump, R.L. (1995), "Performance Implications of Buyer-Supplier Relationships in Industrial Markets: a Transaction Cost Explanation", *Journal of Business Research,* Vol. 32, 57-66.

Helms, L.S. (1999), "Dealing with Missing Data: How to Write an SPSS Syntax File", *Paper presented at the annual meeting of the Southwest Educational Research Association.* San Antonio, January, pp. 1-19.

Hennart, J.F. (1988), "Upstream Vertical Integration in the Aluminum and Tin Industries: a Comparative Study of the Choice between Market and Intrafirm Coordination", *Journal of Economic Behavior and Organization,* Vol. 9, No. 3, pp. 281-299.

Hill, C. (1990), "Cooperation, Opportunism, and the Invisible Hand: Implications for Transaction Cost Theory", *Academy of Management Review,* Vol. 15, No. 3, pp. 500-513.

Hinkin, T.R. (1998), "A Brief Tutorial on the Development of Measures for Use in Survey Questionnaires", *Organizational Research Methods*, Vol. 1, No. 1, pp. 104-121.

Hoinville, G., Jowell, R. and Associates (1978), *Survey Research Practice,* London: Heinemann Educational Books Ltd.

Houston, M.B. and Johnson, S.A. (2000), "Buyer-Supplier Contracts versus Joint Ventures: Determinants and Consequences of Transaction Structure", *Journal of Marketing Research,* Vol. 37, No. 1, pp. 1-15.

Hsu, C. and Hsu, J.C. (2005), "Performance Evaluation of Information System Outsourcing in Taiwan's Large Enterprises", *The Journal of American Academy of Business, Cambridge,* March, pp. 255-259.

Hu, Q., Saunders, C. and Gebelt, M. (1997), "Research Report: Diffusion of Information Systems Outsourcing: a Re-evaluation of Influence Sources", *Information Systems Research,* Vol. 8, No. 3, pp. 288-301.

Huber, R.L. (1993), "How Continental Bank Outsourced its 'Crown Jewels'", *Harvard Business Review,* Vol. 71, No. 1, pp. 121-129.

Hyde, K.F. (2000), "Recognising Deductive Processes in Qualitative Research", *Qualitative Market Research: An International Journal,* Vol. 3, No. 2, pp. 82-89.

Ingham, H. and Thompson, S. (1994), "Wholly-Owned versus Collaborative Ventures for Diversifying Services", *Strategic Management Journal,* Vol. 15, No. 4, pp. 325-334.

J. P. (1981), "Construct Validity: a Review of Basic Issues and Marketing Practices", *Journal of Marketing Research,* Vol. 18, May, pp. 133-145.

Jaccard, J., Turrisi, R. and Wan, C.K. (1990), *Interaction Effects in Multiple Regression.* Newbury: Sage Publications.

Jackson, T., Iloranta, K. and McKenzie, S. (2001), "Profits or Perils? The Bottom Line on Outsourcing", Available at: http://www.bah.de/content/downloads/Profits_or_pearls.pdf.

Javidan, M. (1998), "Core Competence: What Does It Mean in Practice?", *Long Range Planning,* Vol. 31, No. 1, pp. 60-71.

Jean Lee, S.K. (1992), "Quantitative versus Qualitative Research Methods - Two Approaches to Organisation Studies", *Asia Pacific Journal of Management,* Vol. 9, No. 1, pp. 87-94.

Jennings, D. (2002), "Strategic Sourcing: Benefits, Problems and a Contextual Model", *Management Decision*, Vol. 40, No. 1, pp. 26-34.

Jobber, D. and O'Reilly, D. (1996), "Industrial Mail Surveys: Techniques for Inducing Response", *Marketing and Intelligence Planning,* Vol. 14, No.1, pp. 29-34.

John, G. and Weitz, B. A. (1988), "Forward Integration into Distribution: an Empirical Test of Transaction Cost Analysis", *Journal of Law, Economics, and Organization,* Vol. 4, No. 2, pp. 337-355.

Johnson, P. and Duberley, J. (2000), *Understanding Management Research: an Introduction to Epistemology.* London: Sage.

Joreskog, K. (1971), "Statistical Analysis of Congeneric Tests", *Psychometrika,* Vol. 36, pp. 109-133.

Joshi, A.W. and Arnold, S.J. (1997), "The Impact of Buyer Dependence on Buyer Opportunism in Buyer-Supplier Relationships: the Moderating Role of Relational Norms", *Psychology and Marketing,* Vol. 14, No. 8, pp. 823-845.

Joskow, P.L. (1985), "Vertical Integration and Long-term Contracts: the Case of Coal-Burning Electric Generating Plants", *Journal of Law Economics and organization,* Vol. 1, No. 1, pp. 33-80.

Joskow, P.L. (1987), "Contract Duration and Relationship-Specific Investments: Empirical Evidence from Coal Markets", *The American Economic Review,* Vol. 77, No.1, pp. 168-185.

Joskow, P.L. (1988), "Asset Specificity and the Structure of Vertical Relationships: Empirical Evidence", *Journal of Law, Economics, and Organization,* Vol. 4, No. 1, pp. 95-117.

Jurison, J. (1995), "The Role of Risk and Return in Information Technology Outsourcing Decisions", *Journal of Information Technology,* Vol. 10, No. 4, pp. 239-247.

Kakabadse, N. and Kakabadse, A. (2000), "Critical Review – Outsourcing: a Paradigm Shift", *Journal of Management Development,* Vol. 19, No. 8, pp. 670-728.

Kanuk, L. and Berenson, C. (1975), "Mail Surveys and Response Rates: a Literature Review", *Journal of Marketing Research,* Vol. 12, No. 4, pp. 440-453.

Kachigan, S.K. (1982), *Multivariate Statistical Analysis: a Conceptual Introduction.* New York: Radius Press.

Kern, T. (1999), "Relationships in IT Outsourcing: an Exploratory Research Study of a Conceptual Framework", *PhD Thesis*, Christ Church College, University of Oxford.

Ketler, K. and Walstrom, J. (1993), "The Outsourcing Decision", *International Journal of Information Management,* Vol. 13, No. 6, pp. 449-459.

Khosrowpour, M. and Subramanian, G.H. (1996), "Managing Information Technology with Outsourcing: an Assessment of Employee Perceptions", *Journal of Applied Business Research,* Vol. 12, No. 3, pp. 85-97.

Kim, J.O. and Mueller, C.W. (1978), *Factor Analysis: Statistical Methods and Practical issues.* London: Sage Publications.

Kimberly, J.R. (1976), "Organizational Size and the Structuralist Perspective: a Review, Critique, and Proposal", *Administrative Science Quarterly,* Vol. 21, December, pp. 571-597.

King, W.L. (1994), "Strategic Outsourcing Decisions", *Information Systems Management,* Vol. 11, No. 4, pp. 58-62.

King, W.R. and Malhotra, Y. (2000), "Developing a Framework for Analyzing IS Outsourcing", *Information and Management,* Vol. 37, No. 6, pp. 323-334.

Klein, B. and Leffler, K.B. (1981), "The Role of Market Forces in Assuring Contractual Performance", *Journal of Political Economy*, Vol. 89, No. 4, pp. 615-641.

Klein, B., Crawford, R. and Alchian, A. (1978), "Vertical Integration, Appropriable Rents, and the Competitive Contracting Process", *Journal of Law and Economics,* Vol. 21, pp. 297-326.

Klein, S. and Roth, V.J. (1990), "Determinants of Export Channel Structure: the Effects of Experience and Psychic Distance Reconsidered", *International Marketing Review,* Vol. 7, No. 5, pp. 27-38.

Klein, S., Frazier, G.L. and Roth, V.J. (1990), "A Transaction Cost Analysis Model of Channel Integration in International Markets", *Journal of Marketing Research,* Vol. 27, No. 2, pp. 196-208.

Kliem, R.L. (1999), "Managing Risks of Outsourcing Agreements", *Information Systems Management,* Vol. 16, No. 3, pp. 91-94.

Koch, M.J. and McGrath, R.G. (1996), "Improving Labor Productivity: Human Resource Management Policies Do Matter", *Strategic Management Journal,* Vol. 17, No. 5, pp. 335-354.

Kogut, B. and Zander, U. (1992), "Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology", *Organisation Science,* Vol. 3, pp. 383-397.

Kotabe, M. (1992), *Global Sourcing Strategy: R&D, Manufacturing, and Marketing Interfaces.* New York: Quorum.

Kovacs, G. and Spens, K.M. (2005), "Abductive Reasoning in Logistics Research", *International Journal of Physical Distribution and Logistics Management,* Vol. 35, No. 2, pp. 132-144.

Kvaloy, O. (2003), "Asset Specificity and Vertical Integration", *Working Paper No. 51/0,* September. Stavanger University College. Available at: http://bora.nhh.no:8080/bitstream/2330/426/1/A51_03.pdf

Lacity, M.C. (1993), "The Information Systems Outsourcing Bandwagon", *Sloan Management Review,* Vol. 35, No. 1, pp. 73-86.

Lacity, M. and Hirschheim, R. (1993), *Information System Outsourcing.* Chichester: Wiley.

Lacity, M.C. and Willcocks, L.P. (1995), "Interpreting Information Technology Sourcing Decisions from a Transaction Cost Perspective: Findings and Critique". *Accounting, Management and Information Technologies,* Vol. 5, No. 3-4, pp. 203-244.

Lacity, M.C., Willcocks, L.P. and Feeny, D.F. (1996). "The Value of Selective IT Sourcing". *Sloan Management Review,* Vol. 37, pp. 13-25.

Lacity, M.C. and Willcocks, L.P. (1998), "An Empirical Investigation of Information Technology Sourcing Practices: Lessons from Experience", *MIS Quarterly,* Vol. 22, No. 3, September, pp. 363-408.

Lamminmaki, D. (2005), "Why Do Hotels Outsource? An Investigation Using Asset Specificity", *International Journal of Contemporary Hospitality Management,* Vol. 17, No. 6, pp. 516-528.

Langdridge, D. (2004), *Introduction to Research Methods and Data Analysis in Psychology,* Harlow: Prentice.

Langlois, R.N. (1992), "Transaction-Cost Economics in Real Time", *Industrial and Corporate Change,* Vol. 1, No. 1, pp. 99-127.

Lankford, W.M. and Parsa, F. (1999), "Outsourcing: a Primer", *Management Decision,* Vol. 37, No. 3/4, pp. 310-316.

Lazzarini, S.G., Claro, D.P. and Mesquita, L.F. (2008), "Buyer-Supplier and Supplier-Supplier Alliances: Do They Reinforce or Undermine One Another", *Journal of Management Studies,* Vol. 45, No. 3, pp. 561-584.

Lee, J.N. and Kim, Y.G. (1999), "Effect of Partnership Quality on IS Outsourcing Success: Conceptual Framework and Empirical Validation", *Journal of Management Information Systems,* Vol. 15, No. 4, pp. 29-61.

Lee, J.-N., Huynh, M.Q., Chi-wai, K. R. and Pi, S.-M. (2000), "The Evolution of Outsourcing Research: What is the Next Issue?", *Proceedings of the 33rd Hawaii International Conference on System Sciences.* Available at: http://csdl2.computer.org/comp/proceedings/hicss/2000/0493/07/04937070.pdf. Accessed on: 30/11/2005.

Lee, M.K.O. (1996), "IT Outsourcing: Practical for Management", *Industrial Management & Data Systems,* Vol. 96, No. 1, pp. 15-20.

Lepak, D.P., Takeuchi, R. and Snell, S.A. (2003), "Employment Flexibility and Firm Performance: Examining the Interaction Effects of Employment Mode, Environmental Dynamism, and Technological Intensity", *Journal of Management,* Vol. 29, No. 5, pp. 681-703.

Lever, S. (1997), "An Analysis of Managerial Motivations Behind Outsourcing Practices in Human Resources", *Human Resource Planning,* Vol. 20, No. 2, pp. 37-47.

Levy, D.T. (1985), "The Transaction Cost Approach to Vertical Integration: an Empirical Examination", *Review of Economics and Statistics,* Vol. 67, No. 3, pp. 438-445.

Lieberman, M.B. (1991), "Determinants of Vertical Integration: an Empirical Test", *Journal of Industrial Economics,* Vol. 39, No. 5, pp. 451-466.

Liebeskind, J. (1996), "Knowledge, Strategy, and the Theory of the Firm", *Strategic Management Journal,* Vol. 17, pp. 93-107.

Lincoln, Y.S. and Guba, E.G. (1985), *Naturalistic Inquiry.* London: Sage Publications.

Little, R.J.A. and Rubin, D.B. (2002), *Statistical Analysis with Missing Data*, 2nd edn. New York: Wiley.

Loasby, B.J. (1998), "The Organisation of Capabilities", *Journal of Economic Behaviour and Organization,* Vol. 35, No. 2, pp. 139-160.

Loh, L. (1994), "An Organizational-Economic Blueprint for Information Technology Outsourcing: Concepts and Evidence", *Proceedings of 15th International Conference on Information Systems,* Vancouver, Canada, pp. 73-89.

Loh, L. and Venkatraman, N. (1991), "Outsourcing as a Mechanism of Information Technology Governance: a Cross-Sectional Analysis of its Determinants", *Working Paper No. BPS 3271-91,* Massachusetts Institute of Technology, Alfred P. Sloan School of Management, Cambridge, MA. Cited in Teng, J.T.C., Cheon, M.J. and Grover, V. (1995), "Decisions to Outsource Information Systems Information Systems Functions: Testing a Strategy-Theoretic Discrepancy Model", *Decision Sciences,* Vol. 26, No. 1, pp. 75-103.

Loh, L. and Venkatraman, N. (1992a), "Diffusion of Information Technology Outsourcing: Influence Sources and the Kodak Effect", *Information Systems Research,* Vol. 3, No. 4, pp. 334-358.

Loh, L. and Venkatraman, N. (1992b), "Determinants of Information Technology Outsourcing: a Cross-Sectional Analysis", *Journal of Management Information Systems,* Vol. 9, No. 1, pp. 7-24.

Lohtia, R., Brooks, C.M. and Krapfel R.E. (1994), "What Constitutes a Transaction-Specific Asset: an Examination of the Dimensions and Types", *Journal of Business Research,* Vol. 30, No. 3, pp. 261-270.

Lonsdale, C. (1999), "Effectively Managing Vertical Supply Relationships: a Risk Management Model for Outsourcing", *Supply Chain Management: An International Journal,* Vol. 4, No, 4, pp. 176-183.

Lorenzoni, G. and Lipparini, A. (1999), "The Leveraging of Interfirm Relationships as a Distinctive Organizational Capability: a Longitudinal Study". *Strategic Management Journal,* Vol. 20, No. 4, pp. 317-338.

Lyons, B.R. (1995), "Specific Investment, Economics of Scale, and the Make-or-Buy Decision: a Test of Transaction Cost Theory", *Journal of Economic Behavior and Organization,* Vol. 26, No. 3, pp. 431-443.

Madhok, A. (2002), "Reassessing the Fundamentals and Beyond: Ronald Coase, the Transaction Cost and Resource-Based Theories of the Firm and the Institutional Structure of Production", *Strategic Management Journal,* Vol. 23, No. 6, pp. 535-550.

Malhotra, M.K. and Grover, V. (1998), "An Assessment of Survey Research in POM: from Constructs to Theory". *Journal of Operations Management,* Vol. 16, No. 4, pp. 407-425.

Malone, T.W., Yates, J. and Benjamin, R.I. (1987), "Electronic Markets and Electronic Hierarchies", *Communications of the ACM,* Vol. 30, No. 6, pp. 484-497.

Maltz, A. (1993), "Private Fleet Use: a Transaction Cost Approach", *Transportation Journal,* Vol. 32, No. 3, pp. 46-53.

Marchall, D. (2001), "The Outsourcing Process: from Decision to Relationship Management", *PhD Thesis,* University of Bath.

Marschak, J. (1968), "Economics of Inquiring, Communicating, Deciding", *The American Economic Review,* Vol. 58, No. 2, pp. 1-18.

Marshall, A. (1949), *Principles of Economics,* 8th ed. London: The Macmillan Press Ltd.

Martin, X., Mitchell, W. and Swaminathan, A. (1995), "Recreating and Extending Japanse Automobile Buyer-Supplier Links in North America", *Strategic Management Journal,* Vol. 16, pp. 580-619.

Masten, S.E., Meehan, J.W. and Snyder, E.A. (1989), "Vertical Integration in the U.S. Automobile Industry: a Note on the Influence of Transaction Specific Assets", *Journal of Economic Behavior and Organization,* Vol. 12, pp. 265-273.

Masten, S.E., Meehan, J.W. and Snyder, E.A. (1991), "The Costs of Organization", *Journal of Law, Economics, and Organization,* Vol. 7, No. 1, pp. 1-25.

Masten, S.E. (1984), "The Organization of Production: Evidence from the Aerospace Industry", *Journal of Law and Economics,* Vol. 27, No. 2, pp. 403-417.

Masten, S. (1993), "Transaction Costs, Mistakes, and Performance: Assessing the Importance of Governance", *Managerial and Decision Economics,* Vol. 14, pp. 119-129.

May, T. (2001), *Social Research: Issues, Methods and Process,* Buckingham: Open University Press.

McIvor, R.T. (2000), "A Practical Framework for Understanding the Outsourcing Process", *Supply Chain Management: An International Journal,* Vol. 5, pp. 22-36.

McIvor, R. (2005), *The Outsourcing Process: Strategies for Evaluation and Management.* Cambridge: Cambridge University Press.

McIvor, R.T., Humphreys, P.K. and McAleer, W.E. (1997), "A Strategic Model for the Formulation of an Effective Make-or-Buy Decision", *Management Decision,* Vol. 35, No. 2, pp. 169-178.

McKeon, J.I. (1991), "Outsourcing Begins in-House", *Transportation and distribution,* September, pp 25-28. Cited in Razzaque, M.A. and Sheng, C.C. (1998), "Outsourcing of Logistics Functions: A Literature", *International Journal of Physical Distribution and Logistics Management,* Vol. 28, No. 2, pp. 89-107.

Meranda, P.F. (1997), "A Guide to the Proper Use of Factor Analysis in the Conduct and Reporting of Research: Pitfalls to Avoid", *Measurement and Evaluation in Counseling and Development,* Vol. 30, pp. 156-164.

Meredith, J. (1993), "Theory Building through Conceptual Methods", *International Journal of Operations and Production Management,* Vol. 13, No. 5, pp. 3-11.

Mikkelsen, B. (2000), *Methods for Development Work and Research: a Guide for Practitioners.* Sage: London.

Milgrom, P. and Roberts, J. (1992), *Economics, Organization and Management.* Upper Saddle River, N.J: Prentice-Hall.

Mitchell, V. (1996), "Assessing the Reliability and Validity of Questionnaires", *Journal of applied management Studies,* Vol. 5, No. 2, pp.199-207.

Mohr, J. and Spekman, R. (1994), "Characteristics of Partnership Success: Partnership Attributes, Communication Behavior, and Conflict Resolution Techniques", *Strategic Management Journal,* Vol. 15, No. 2, pp. 135-152.

Mol, M.J. and Gedajlovic, E.R. (2001), "The Effects of External Sourcing on Performance: a Longitudinal Study of the Dutch Manufacturing Industry", *Association of International Business Conference,* Sydney. Available at: http://www.geocities.com/michaelmolhotmailcom/Research/Commonalityamongdiversity-EUsourcingmodel.pdf, Accessed on 29/11/2005.

Moldoveanu, M.C. and Baum, J.A.C. (2002), "Contemporary Debates in Organizational Epistemology" in Baum, J.A.C. (ed.) *The Blackwell Companion to Organizations.* Oxford: Blackwell Publishers Ltd.

Molteberg, E. and Bergstrom, C. (2000), "Our Common Discourse: Diversity and Paradigms in Development Studies". *Centre for International Environment and Development Studies.* Agricultural University of Norway, Working Paper Number 20.

Montague, W.P. (1962), *The Ways of Knowing or the Methods of Philosophy* (6th ed). London: Allen & Unwin Ltd (Cited in Von Krogh *et al.*, 1994).

Monteverde, K. and Teece, D.J. (1982), "Supplier Switching Costs and Vertical Integration in the Automobile Industry", *The Bell Journal of Economics,* Vol. 13, No. 1, pp. 206-213.

Morill, C. and Morill, J. (2003), "Internal Auditors and the External Audit: a Transaction Cost Perspective", *Managerial Auditing Journal,* Vol. 18, No. 6/7, pp. 490-504.

Murray, J.Y. (2001), "Strategic Alliance-Based Global Sourcing Strategy for Competitive Advantage: a Conceptual Framework and Research Propositions", *Journal of International Marketing,* Vol. 9, No. 4, pp. 30-58.

Murray, J.Y. and Kotabe, M. (1995), "Strategic and Financial Performance Implications of Global Sourcing Strategy: a Contingency Analysis", *Journal of International Business Studies,* Vol. 26, No. 1, pp. 181-202.

Murray, J.Y. and Kotabe, M. (1999), "Sourcing Strategies of U.S. Service Companies: a Modified Transaction-Cost Analysis", *Strategic Management Journal,* Vol. 20, No. 9, pp. 791-809.

Nam, K., Rajagopalan, S., Rao, H.R. and Chaudhury, A. (1996), "A Two-Level Investigation of Information Systems Outsourcing", *Communication of the ACM,* Vol. 39, No. 7, pp. 36-44.

Nelson, P., Richmond, W. and Seidmann, A. (1996), "Two Dimensions of Software Acquisition", *Communications of the ACM,* Vol. 39, No. 7, pp. 29-35.

Neuman, W.L. (2003), *Social Research Methods: Qualitative and Quantitative Approaches* (5th ed). Boston: Allyn & Bacon.

Nishiguchi, T. (1994), *Strategic Industrial Sourcing: the Japanese Advantage,* New York: Oxford University Press.

Nodoushani, O. (2000), "Epistemological Foundations of Management Theory and Research Methodology", *Human Systems Management,* Vol. 19, No. , pp. 71-80.

Nonaka, I. (1994), "A Dynamic Theory of Organizational Knowledge Creation", *Organization Science,* Vol.5, No. 1, pp. 14-37.

Noordeweir, T.G., John, G., Nervin, J.R. (1990), "Performance Outcomes of Purchasing Arrangements in Industrial Buyer-Vendor Relationships", *Journal of Marketing,* Vol. 54, No. 4, pp. 80-93.

Nunnally, J.C. (1978), *Psychometric Theory,* New York: McGraw Hill.

Olinsky, A., Chen, S. and Harlow, L. (2003), "The Comparative Efficacy of Imputation Methods for Missing Data in Structural Equation Modeling", *European Journal of Operational Research*, Vol. 151, No. 1, pp. 53-79.

Ono, Y. and Stango, V. (2005), "Outsourcing, Firm Size, and Product Complexity: Evidence from Credit Unions", *Economic Perspective,* Vol. 29, No. 1, pp. 2-11.

Oppenheim, A.N. (1992), *Questionnaire Design, Interviewing and Attitude Measurement* (2nd ed). London: Pinter Publishers.

Orlikowski, W.J. and Baroudi, J.J. (1991), "Studying Information Technology in Organizations: Research Approaches and Assumptions", *Information System Research,* Vol. 2, No. 1, pp. 1-28.

Palay, T. M. (1984), "Comparative Institutional Economics: The Governance of Rail Freight Contracting" in Williamson, O. E. and Masten, S. E (1995) (ed), *Transaction Cost Economics: Theory and Concepts.* Edward Elgar Publishing. Volume II.

Pallant, J. (2001), *SPSS Survival Manual: a Step by Step Guide to Data Analysis Using SPSS for Windows,* Buckingham: Open University Press.

Parnell, J.A., O'Regan, N. and Ghobadian, A. (2006), "Measuring Performance in Competitive Strategy Research", *Internal Journal of Management and Decision Making,* Vol. 7, No. 4, pp. 408-417.

Parkhe, A. (1993), "Strategic Alliance Structuring: a Game Theoretic and Transaction Cost Examination of Inter-Firm Cooperation", *Academy of Management Journal,* Vol. 36, pp. 794-829.

Parry, J. (2003), "Making Sense of Executive Sensemaking: a Phenomenological Case Study with Methodological Criticism", *Journal of Health Organization and Management,* Vol. 17, No. 4, pp. 240-263.

Patterson, J. and Haas, S. (1999), "A Rational for Outsourcing", *Food Technology,* Vol. 53, No. 10, pp. 52-56.

Pearson, E.S. and Hartley, H.O. (eds) (1958), *Biometrica Tables for Statisticians.* 3rd ed. Published for the Biometrica Trustees. Cambridge University Press. Cited in Tabachnick and Fidell (2007).

Penrose, E. (1959), *The Theory of Growth of the Firm,* John Wiley & Sons. New York.

Perez-Nordtvedt, L., Kedia, B.L., Datta, D.K. and Rasheed, A.A. (2008), "Effectiveness and Efficiency of Cross-Border Knowledge Transfer: an Empirical Examination", *Journal of Management Studies,* Vol. 45, No. 4, pp. 714-744.

Pervan, G. (1998), "How Chief Executive Officers in Large Organizations View the Management of Their Information Systems", *Journal of Information Technology,* Vol. 13, N. 2, pp. 95-109.

Peter, J.P. (1979), "Reliability: a Review of Psychometric Basics and Recent Marketing Practices". *Journal of Marketing Research,* Vol. 16, No. 1, pp. 6-17.

Peter, J.P. (1981), "Construct Validity: a Review of Basic Issues and Marketing Practices", *Journal of Marketing Research,* Vol. 18, No. 2, pp. 133-145.

Peterson, R.A. (1994), "A Meta-Analysis of Cronbach's Coefficient Alpha", *Journal of Consumer Research,* Vol. 21, No. 2, pp. 381-391.

Pfeffer, J. (1993), "Barriers to the Advance of Organizational Science: Paradigm Development as a Dependent Variable", *Academy of Management Review,* Vol. 18, pp. 599-620.

Pirrong, S. (1993), "Contracting Practices in Bulk Shipping Markets", *Journal of Law and Economics,* Vol. 36, No. 1, pp. 937-976.

Pisano, G.P. (1990), "The R&D Boundaries of the Firm: an Empirical Analysis", *Administrative Science Quarterly*, Vol. 35, pp. 153-176.

Plunket, A. and Saussier, S. (2003), "Human Asset Specificity in Alternative Theories of the Firm: How to Rule out Competing Views", *Druid Summer conference Copenhagen.*

Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y. and Podsakoff, N.P. (2003), "Common Method Biases in Behavioural Research: a Critical Review of the Literature and Recommended Remedies", *Journal of Applied Psychology,* Vol. 88, No. 5, pp. 879-903.

Polanyi, M. (1978), *Personal Knowledge: Towards a Post-Critical Philosophy.* London: Routlege & Kegan Paul.

Poppo, L. and Zenger, T. (1998), "Testing Alternative Theories of the Firm: Transaction Cost, Knowledge-Based, and Measurement Explanations for Make-or-Buy Decisions in Information Services", *Strategic Management Journal,* Vol. 19, No. 9, pp. 853-877.

Poppo, L. and Zenger, T. (2002), "Do Formal Contracts and Relational Governance Function as Substitutes or Complements", *Strategic Management Journal,* Vol. 23, pp; 707-725.

Powell, W.W., Koput, K.W. and Smith-Doerr, L. (1996), "Interorganizational Collaboration and the Locus of Innovation: Networks of Learning in Biotechnology", *Administrative Science Quarterly,* Vol. 41, pp. 116-145.

Price, J.L. and Mueller, C.W. (1986), *Handbook of Organizational Measurement,* Marshfield, MA: Pitman.

Provan, K. G. and Skinner, S. J. (1989), "Interorganizational Dependence and Control Predictors of Opportunism in Dealer-Supplier Relations", *Academy of Management Journal,* Vol. 32, pp. 202-212.

Quinn, J.B. (1999), "Strategic Outsourcing: Leveraging Knowledge Capabilities", *Sloan Management Review,* Vol. 40, No. 4, pp. 9-22.

Quinn, J.B. and Hilmer, F.G. (1995), "Strategic Outsourcing", *McKinsey Quarterly,* Nov, No. 1, pp. 48-70.

Quinn, J.B., Doorley, T.L. and Paquette, P.C. (1990), "Technology in Services: Rethinking Strategic Focus", *Sloan Management Review,* Vol. 31, No. 2, pp. 79-87.

Quinn, J.B., Doorley, T. L. and Paquette, P.C. (1990), "Technology in Services: Creating Organizational Revolutions", *Sloan Management Review,* Vol. 31, No. 2, pp. 67-78.

Rahman, Z. and Bhattachryya, S.K. (2002), "Virtual Organisation: a Stratagem". *Singapore Management Review,* Vol. 24, pp. 29-45.

Rapoport, R.N. (1970), "Three Dilemmas in Action Research", *Human Relation,* Vol. 23, No. 4, pp. 499-513.

Razzaque, M.A. and Sheng, C.C. (1998), "Outsourcing of Logistics Functions: A Literature", *International Journal of Physical Distribution and Logistics Management,* Vol. 28, No. 2, pp. 89-107.

Remenyi, D., Williams, B., Money, A. and Swartz, E. (1998), *Doing Research in Business and Management: an Introduction to Process and Method.* London: Sage Publications Ltd.

Research: "A Look at the Role of Methods Usage," *Journal of Business Logistics* Vol. 26, No. 2, pp. 185-208.

Reve, T. (1990), "The Firm as a Nexus of Internal and External Contracts". In Aoki, M., Gustafsson, B., and Williamson, O.E., *The firm as a Nexus of Treaties.* London: Sage Publications. pp. 133-161.

Rindfleisch, A. and Heide, J.B. (1997), "Transaction Cost Analysis: Past, Present, and Future Applications", *Journal of Marketing,* Vol. 61, No. 4, pp. 30-54.

Ring, P.S. and Van De Ven, A.H. (1992), "Structuring Cooperative Relationships between Organizations", *Strategic Management Journal,* Vol. 13, No. 7, pp. 483-498.

Riordan, M.H. and Williamson, O.E. (1985), "Asset Specificity and Economic Organization", *International Journal of Industrial Organization,* Vol. 3, No. 4, pp. 365-378.

Riphahn, R.T. and Serfling, O. (2005), "Item non – Response on Income and Wealth Questions", *Empirical Economics*, Vol. 30, No. 2, pp. 521-538.

Robey, D. (1996), "Research Commentary: Diversity in Information Systems Research: Threat, Promise, and Responsibility", *Information Systems Research,* Vol. 7, No. 4, pp. 400-408.

Robinson, R.B. (1982), "The Importance of 'Outsiders' in Small Firm Strategic Planning", *Academy of Management Journal,* Vol. 25, No. 1, pp. 80-93.

Robson, C. (1993), *Real World Research.* Oxford: Blackwell.

Rodriguez, T.F.E. and Padilla, A.M.G. (2005), "The Relationship between Leisure Outsourcing and Specificity: Performance and Management Perception in Hotels in the Canary Islands", *Journal of Hospitality and Tourism Research,* Vol. 29, No. 3, pp. 396-418.

Rogers, E.M. (1983), *Diffusion of innovations,* 3rd ed, London: Free Press.

Roth, P. (1994), "Missing Data: a Conceptual Review for Applied Psychologists", *Personnel Psychology*, Vol. 47, No. 3, pp. 537-560.

Rubin D.B. (1987), *Multiple Imputation for non – Response in Surveys.* Wiley: New York.

Ruchala, L.V. (1997), "Managing and Controlling Specialized Assets", *Managing Accounting: Official Magazine of Institute of Management Accountants,* Vol. 79, No. 4, pp. 20-24.

Sapnas, K.G. and Zeller, R.A. (2002), "Minimising Sample Size When Using Exploratory Factor Analysis for Measurement", *Journal of Nursing Measurement,* Vol. 10, No. 2, pp. 135-153.

Saunders, C., Gebelt, M. and Hu, Q. (1997), "Achieving Success in Information Systems Outsourcing", *California Management Review,* Vol. 39, No. 2, pp. 63-80.

Saunders, M., Lewis, P. and Thornhill, A. (2000), *Research Methods for Business Students* (2nd ed.). Essex: Pearson Education Ltd.

Saxton, T. (1997), "The Effects of Partner and Relationship Characteristics on Alliance Outcomes", *Academy of Management Journal,* Vol. 40, No. 2, pp. 443-461.

Scherer, F.M. (1980), *Industrial Market Structure and Economic Performance,* Chicago: Rand Mcnally.

Schoemaker, P.J.H. (1992), "How to Link Vision to Core Capabilities", *Sloan Management Review,* Vol. 34, No. 1, pp. 67-81.

Schutt, R.K. (2006), *Investigating the Social World: the Process and Practice of Research* (5th ed). CA: Pine Forge Press.

Sekaran, U. (2000), *Research Methods for Business: a Skill Building Approach* (3rd ed). New York: John Wiley & Sons, Inc.

Shalit, S.S. and Sankar, U. (1977), "The Measurement of Firm Size", *Review of Economics and Statistics,* Vol. 59, No. 3, pp. 290-298.

Sharfman, M.P. and Dean, J.W. (1991), "Dimensions and Constructs: a Response to Dess and Rasheed", *Journal of Management,* Vol. 17, No. 4, pp. 711-715.

Sharpe, M. (1997), "Outsourcing, Organisational Competitiveness, and Work", *Journal of Labour Research,* Vol. XVIII, No. 4, pp. 535-549.

Shelanski, H. and Klein, P.G. (1995), "Empirical Research in Transaction Cost Economics: a Review and Assessment", *Journal of Law, Economics, and Organization,* Vol. 11, No. 2, pp. 335-361.

Shoemaker, P.J., Eichholz, M. and Skewes, E.A. (2002), "Item non Response: Distinguishing between Don't Know and Refuse", *International Journal of Public Opinion Research,* Vol. 14, No. 2, pp. 193 – 201.

Simon, H.A. (1976), *Administrative Behavior: a Study of Decision-Making Processes in Administrative Organization,* 3rd ed. London ; New York : Free Press : Collier Macmillan.

Slaughter, S. and Ang, S. (1996), "Employment Outsourcing in Information Systems", *Communications of the ACM,* Vol. 39, No. 7, pp. 47-54.

Smith, M.A., Mitra, S.A. and Narasimhan, S. (1998), "Information Systems Outsourcing: a Study of pre-Event Firm Characteristics", *Journal of Management Information systems,* Vol. 15, No. 2, pp. 61-93.

Smyth, D.J., Boyes, W.J. and Peseau, D.E. (1975), "The Measurement of Firm Size: Theory and Evidence for the United States and the United Kingdom", *Review of Economics and Statistics,* Vol. 57, No. 1, pp. 111-114.

Sobol, M.G. and Apte, U. (1995), "Domestic and Global Outsourcing Practices of America's Most Effective IS Users", *Journal of Information Technology,* Vol. 10, No. 4, pp. 269-280.

Spector, P.E. (1992), *Summated Rating Scale Construction: an Introduction,* Newbury Park, CA: Sage.

Spens, K.M. and Kovacs, G. (2006), "A Content Analysis of Research Approaches in Logistics Research", *International Journal of Physical Distribution and Logistics Management,* Vol. 36, No. 5, pp. 374-390.

Stevens, J. (1996), *Applied Multivariate Statistics for the Social Sciences,* New Jersey: Lawrence Erlbaum.

Straub, D.W. (1989), "Validating Instruments in IS Research", *MIS Quarterly,* Vol. 13, No. 1, pp. 147-169.

Stuckey, J. (1983), *Vertical Integration and Joint Ventures in the Aluminum Industry,* Cambridge: Harvard University Press.

Stump, R.L. and Heide, J.B. (1996), "Controlling Supplier Opportunism in Industrial Relationships", *Journal of Marketing Research,* Vol. 33, No. 4, pp. 431-441.

Sumner, A. and Tribe, M. (2004), "The Nature of Epistemology and Methodology in Development Studies: What Do We Mean by 'Rigour'?". *Paper Prepared for: DSA Annual Conference,* Church House, London, 6 November.

Tabachnick, B.G. and Fidell, L.S. (2007), *Using Multivariate Statistic*, 5th edn. Boston: Pearson Education, Inc.

Tashakkori, A. and Teddlie, C. (1998), *Mixed Methodology: Combining Qualitative and Quantitative Approaches.* Thousand Oaks, CA: Sage.

Teece, D. (1986), "Profiting from Technological Innovation", *Research Policy,* Vol. 15, pp. 285-305.

Teece, D.J. and Pisano, G. (1994), "The Dynamic Capabilities of Firms: an Introduction", *Industrial and Corporate Change,* Vol. 3, No. 3, pp. 537-556.

Teece, D., Pisano, G. and Shuen, A. (1997), "Dynamic Capabilities and Strategic Management", *Strategic Management Journal,* Vol. 18, No. 7, pp. 509-533.

Templeton, G.F., Lewis, B.R. and Snyder, C.A. (2002), "Development of a Measure for the Organizational Learning Construct", *Journal of Management Information Systems,* Vol. 19, No. 2, pp. 175-218.

Teng, J.T.C., Cheon, M.J. and Grover, V. (1995), "Decisions to Outsource Information Systems Information Systems Functions: Testing a Strategy-Theoretic Discrepancy Model", *Decision Sciences,* Vol. 26, No. 1, pp. 75-103.

Tourangeau, R., Rips, L.J. and Rasinski, K. (2000), *The Psychology of Survey Response,* Cambridge: Cambridge University Press.

Trochim, W.M.K. (2006), *Positivism and post-Positivism.* Available at: http://www.socialresearchmethods.net/kb/positivsm.php.

Tsang, E.W.K. (2000), "Transaction Cost and Resource-based Explanations of Joint Ventures: a Comparison and Synthesis", *Organization Studies,* Vol. 21, No. 1, pp. 215-242.

Tull, D.S. and Hawkins, D.I. (1990), *Marketing Research: Measurement and Method* (5th edition). New York: McMillan Publishing Company.

Van Den Berg, G.J., Lindeboom, M. and Dolton, P.J. (2006), "Survey non-Response and the Duration of Unemployment", *Journal of the Royal Statistical Society,* Vol. 169, No. 3, pp. 585-604.

Van Goor, H. and Van Goor, A. (2007), "The Usefulness of the Basic Question Procedure for Determining non-Response Bias in Substantive Variables", *International Journal of Market Research,* Vol. 49, No. 2, pp. 221-236.

Venkatesan, R. (1992), "Strategic Sourcing: to Make or not to Make", *Harvard Business Review,* Vol. 70, No. 6, pp. 98-107.

Venkatraman, N. (1997), "Beyond Outsourcing: Managing IT Resources as a Value Center", *Sloan Management Review,* Vol. 38, No. 3, pp. 51-64.

Vining, A.R. and Globerman, S. (1999), "A Conceptual Framework for Understanding the Outsourcing Decision", *European Management Journal,* Vol. 17, No. 6, pp. 645-654.

Vining, A.R. and Globerman, S. (2004), "The Outsourcing Decision: a Strategic Framework", Paper provided by Economics Working Paper Archive EconWPA.

Von Krogh, G., Roos, J. and Slocum, K. (1994), "An Essay on Corporate Epistemology", *Strategic Management Journal,* Vol. 15, No. , pp. 53-71.

Wahrenburg, M., Hackethal, A., Friedrich, L. and Gellrich, T. (2006), "Strategic Decisions Regarding the Vertical Integration of Human Resource Orgsanizations: Evidence For an Integrated HR Model for the Financial Services and non-Financial Services Industry in Germany, Austria and Switzerland", *International Journal of Human Resource Management,* Vol. 17, pp. 1726-1771.

Walker, G. and Poppo, L. (1991), "Profit Centers, Single-Source Supplies, and Transaction Costs", *Administrative Science Quarterly,* Vol. 36, No. 1, pp. 66-87.

Walker, G. and Weber, D. (1984), "A Transaction Cost Approach to Make-or-Buy Decisions", *Administrative Science Quarterly,* Vol. 29, No. 3, pp. 373-391.

Wang, E.T. (2002), "Transaction Attributes and Software Outsourcing Success: an Empirical Investigation of Transaction Cost Theory", *Information Systems Journal*, Vol. 12, pp. 153-181.

Wang, C.L. and Ahmed, P.K. (2004), "The Development and Validation of the Organisational Innovativeness Construct Using Confirmatory Factor Analysis", *European Journal of Innovation Management,* Vol. 7, No. 4, pp. 303-313.

Webb, J.R. (1992), *Understanding and Design Marketing Research.* London: The Dryden Press.

Weiss, A.M. and Anderson, E. (1992), "Converting from Independent to Employee Salesforces: the Role of Perceived Switching Costs", *Journal of Marketing Research,* Vol. 29, No. 1, pp. 101-115.

Welch, J.A. and Nayak, P.R. (1992), "Strategic Sourcing: a Progressive Approach to the Make-or-Buy Decision", *Academy of Management Executive,* Vol. 6, No. 1, pp. 23-31.

Widener, S.K. and Selto, F.H. (1999), "Management Control Systems and Boundaries of the Firm: Why Do Firms Outsource Internal Auditing Activities", *Journal of Management Accounting Research,* Vol. 11, pp. 45-73.

Wiggins, S.N. (1991), "The Economics of the Firm and Contracts: a Selective Survey", *Journal of Institutional and Theoretical Economics,* Vol. 147, No. 4, pp. 603-661.

Wilden, A. (1972), *System and Structure.* London: Tavistock.

Willcocks, L. and Currie, W. (1997), "Contracting-out Information Technology in the Public Sector Context: Research and Critique", *Journal of the Australian and New Zealand Academy of Management,* Vol. 2, No. 2, pp. 34-49.

Willcocks, L., Lacity, M.C. and Fitzgerald, G. (1995), "Information Technology Outsourcing in Europe and the USA: Assessment Issues", *International Journal of Information Management,* Vol. 15, pp. 333-351.

Williamson, O.E. (1971), "The Vertical Integration of Production: Market Failure Considerations", *American Economic Review,* Vol. 61, No. 2, pp. 112-123.

Williamson, O.E. (1975), *Markets and Hierarchies: Analysis and Antitrust Implications.* New York: Free Press.

Williamson, O.E. (1979), "Transactions Cost Economics: the Governance of contractual relations", *Journal of Law and Economics*, Vol. 22, No. 2, pp. 233-261.

Williamson, O.E. (1983), "Credible Commitments: Using Hostages to Support Exchange", *American Economic Review,* Vol. 73, No. 4, p.519-540.

Williamson, O.E. (1985), *The Economic Institutions of Capitalism.* New York: Free Press.

Williamson, O.E. (1986), *Economic Organization: Firms, Markets, and Policy Control.* Brighton: Wheatsheaf.

Williamson, O.E. (1988), "The Logic of Economic Organization", *Journal of Law, Economics, and Organisations,* Vol. 4, No. 1, pp. 65-93.

Williamson, O.E. (1991), "Comparative Economic Organization: the Analysis of Discrete Structural Alternatives", *Administrative Science Quarterly,* Vol. 36, No. 2, pp. 269-296.

Williamson, O.E. (1993), "Transaction Cost Economics and Organization Theory", *Industrial and Corporate Change*, Vol. 2, No.1, pp.107-156.

Williamson, O.E. (1996), *The Mechanisms of Governance.* New York: Oxford University Press.

Williamson, O.E. (1999a), "Public and Private Bureaucracies", *Journal of Law, Economics, and Organisation,* Vol. 15 (April), pp. 306-342.

Williamson, O.E. (1999b), "Strategy Research: Governance and Competence Perspectives", *Strategic Management Journal,* Vol. 20, No.12, pp. 1087-1108.

Williamson, O.E. (2002), "The Theory of the Firm as Governance Structure: from Choice to Contract", *Journal of Economic Perspectives,* Vol. 16, No. 3, pp. 171-195.

Winkler, A. and McCarthy, P. (2005), "Maximising the Value of Missing Data", *Journal of Targeting, Measurement and Analysis for Marketing,* Vol. 13, No. 2, pp. 168-178.

Yin, R.K. (1999), *Case Study Research – Design and Method,* London: Sage Publications.

Yu, J. and Cooper, H. (1983), "A Quantitative Review of Research Design Effects on Response Rates to Questionnaires", *Journal of Marketing Research,* Vol. 20, No. 1, pp. 36-44.

Zaheer, A. and Venkatraman, N. (1994), "Determinants of Electronic Integration in the Insurance Industry: an Empirical Test", *Management Science,* Vol. 40, No. 5, pp. 549-566.

Zaheer, A. and Venkatraman, N. (1995). "Relational Governance as an Interorganizational Strategy: an Empirical Test of the Role of Trust in Economic Exchange". *Strategic Management Journal,* Vol. 16, pp. 373-392.

Zaheer, A., McEvily, B. and Perrone, V. (1998), "Does Trust Matter? Exploring the Effects of Inter-Organisational and Interpersonal Trust on Performance", *Organization Science,* Vol.9, pp. 141-159.

Zajac, E.J. and Olsen, C.P. (1993), "From Transaction Cost to Transactional Value Analysis: Implications for the Study of Interorganizational Strategies", *Journal of Management Studies,* Vol. 30, No. 1, pp. 131-145.

Zhu, Z., Hsu, K. and Lillie, J. (2001), "Outsourcing – a Strategic Move: the Process and the Ingredients for Success", *Management Decision,* Vol. 39, No. 5, pp. 373-378.

Appendix 2.1: A review of asset specificity definitions

Source	Definition	Key Characteristics
Erramilli & Rao (1993, p.21)	Transaction-specific assets are *non-redeployable* physical and human investments that are specialized and *unique to a task* (Williamson, 1986, Klein et al., 1990)	***Uniqueness of assets to task / activity***
Widener & Selto (1999, p. 48)	Assets are specific if they are *unique* to certain activities	
Rodriguez & Padilla (2005, p. 398)	An asset is specific when it cannot be reassigned to an alternative use (Williamson, 1975, 1985).	***Redeployment & transferability of assets / investments that are needed for supporting a particular transaction or production***
Brown & Potoski (2005, p. 335)	Asset specificity refers to whether specialized investments are required to produce the service / good. By special investments, we mean investments that apply to the production of one service but are very difficult to adapt for the production of other services / goods.	
Morill & Morill (2003, p. 494)	A transaction-specific investment is one that is necessary *to support a particular* transaction, but is not readily *redeployable* or useful to any other transaction	
John & Weitz (1988, p.340)	Asset specificity refers to the extent to which specialized or nonredeployable investments are needed to support an exchange	
Williamson (1985, p. 95) Williamson (1988, p. 70)	Asset specificity has reference to the degree to which an asset can be redeployed to alternative uses and by alternative users without sacrifice of productive value.	
Murray & Kotabe (1995, p. 184-185; 1999, p. 795)	Asset specificity refers to investments made in specific *(non-marketable)* resources,	
Williamson (1985, p. 55)	Asset specificity refers to ***durable*** investments that are undertaken in support of particular transactions, the opportunity cost of which investments is much lower in best alternative uses or by alternative user should the original transaction be prematurely terminated.	***The value of the asset outside a specific transactional relationship.***
Aubert *et al.* (1996, p. 53)	When an asset is ***durable*** and dedicated to a specific transaction it is highly specific to the ***transaction***.	
Lohtia *et al.* (1994, p. 261)	Transaction-specific Asset (TSA) is an asset, either tangible or intangible, that has *little value* outside of a particular relationship.	
Brouthers & Brouthers (2003, p. 1181)	Specific assets are investments made that have ***little value*** outside the specific transactional relationship	
Heide & John (1990, p. 27)	Specific investments are investments made by a firm that are of considerably ***less value*** outside the focal relationship.	
Vining & Globerman (1999, p. 11)	An asset is specific if it makes a necessary contribution to the production of a good and it has *much lower value in alternative uses* (Klein et al., 1978).	
Barney & Hesterly (1996, p. 119)	Asset specificity refers to the "difference in value between an investment's first best use (in the current transaction) and the second best use (in some other transaction)"	
Walker & Weber (1984, p. 373)	Assets are specific to a transaction when they are highly specialized and thus have *little or no general purpose* outside of the buyer-supplier relationship.	

Kern PhD p.126	Sspecificity of transaction refers to the customisation of services, applications, organisational structures & process that need to be put in place to specifically support transactions with the client.	***Degree of customization needed to support transactions relationship***
Buvik & Anderson (2002, p. 10)	Asset specificity describes the investments made by the buyer in physical assets, production facilities, tools, and knowledge that are tailored to a specific purchasing relationship	
Anderson & Schmittlein (1984, p.386)	Asset specificity arises when durable assets become customized to the user	
Anderson (1985, p. 238)	Transaction specific assets are those assets that "are tailored to a particular user (transaction) and thus are valuable only in narrow range of alternative uses.	
Jurison (1995,p. 241)	Asset specificity is defined as the degree of customization of the transaction	
Heide & John (1988, p. 21)	Transaction-specific investment are those human and physical assets (tangible & intangible) required to support exchange and which are specialized to the exchange relationship.	
Deegan (1997, p. 2-3)	Specific investments are investments which generate returns (specific returns) that are contingent upon the *continued existence of a particular coalition.* An investment is specific to a particular firm or coalition if its current deployment generates greater returns than would be available elsewhere. Its current use is the most optimal use.	***Continuing transaction relationship***
Lamminmaki (2005)	A highly specific asset is an asset that has limited value in an alternative use and hence the value of which resides by the continuance of the trading relationship.	
Lyons (1995, p. 431-432)	Asset specificity is the degree to which the value of an investment is tied to *continuing trade* between a particular pair of traders	
Williamson (1979, p. 239-240)	*Idiosyncratic* transactions are transactions on which the specific identity of the parties has important cost-bearing consequences	***The importance of the identity of the two parties in the transaction process.***
Wiggins (1991, p. 607)	A transaction specific asset is one whose value is substantially higher when used in a transaction between ***two identifiable parties***. A classic example is a building that rests on land (highlights the importance of continuity of the relationship)	

Appendix 2.2: Details of the measurement tools used by the studies reviewed

Source	Asset Specificity Measurement Levels								Research Method	Research setting
	Human	Physical	Site	Dedicated	Brand capital	Temporal	Procedural	Broad Level		
Dibbern *et al.* (2005)	1) Unique business knowledge 2) Unique software knowledge 3) degree of social collaboration between firm & supplier	—	—	—	—	—	—	—	*Questionnaire 5-point Likert scale*	IT outsourcing across industries
Adler *et al.* (1998)	Estimated labour hour / estimated cost of the contract	Final contract value / seller-firm sales on year contract completed	—	No months between contract start date and acceptance of product	—	—	—	—	*Secondary date + phone calls*	Airforce Defence Industry
Auber *et al.* (2003)	—	—	—	—	—	—	—	using the definition in broad terms	*Questionnaire 7-point Likert scale*	IT outsourcing decisions among Canadian firms
Walker & Poppo (1991)	Uniqueness of the required technical labour skills	Uniqueness of the required manufacturing equipment	—	—	—	—	—	—	*Questionnaire 7-point Likert scale*	Supply relationships of a large assembly division in a U.S. manufacturer
Poppo & Zenger (1998)	1) Required company-specific information 2) cost of switching vendor	—	—	—	—	—	—	Cost of switching vendor	*Questionnaire 7-point Likert scale*	IS outsourcing across industries

Mol & Gedajlovic (1999)	—	—	—	—	—	—	—	Total investment by the industry / total turnover of the industry	Secondary data using Statistics Netherlands Database	5-year panel data study on Dutch manufacturing firms
Masten *et al.* (1991)	1) Amount of engineering effort 2) Uniqueness of the required technical knowledge and experience	degree to which equipment are specific to the application	—	—	—	Importance of performing the task on schedule	—	—	*Questionnaire 10-point Likert scale*	Shipbuilding Industry *A ship building project*
Masten (1984)	—	* Highly Standardised .V. Highly specialised * Component complexity	Importance of co-location of the facilities or processes	—	—	—	—	—	*Questionnaire*	*Single firm* Aerospace Industry
Wang (2002)	the uniqueness of the knowledge, technical skills, and the consequent amount of training	—	—	The uniqueness of the operating procedure	—	—	—	—	*Questionnaire 5-point Likert scale*	Software outsourcing across industries
Lamminmaki (2005)	eg: training required for managing IT service in a hotel as it is tailored to the hotel needs	eg: in-house movies inside a hotel	eg: management of hotel shops / management of discos in hotels	eg: The ownership & maintenance of indoor plants	eg: restaurant outsourcing to hotels as it can have a damaging effect on reputation	eg: importance of timely delivery of clean linen in hotels	—	—	*Interviews: Flexible approach incorporating probes in relation to specificity*	*Hotel Industry* (application of Williamson's 6 typology without direct measurement

Morill & Morill (2003)	the degree to which knowledge specific to both the firm and the industry is necessary	—	—	—	—	—	—	—	*Questionnaire 7-point Likert scale*	Members of the institute of internal auditors across industries
John & Weitz (1988)	* Level of training and experience required * Length of time required to become familiar with the company's product & customers	—	—	—	—	—	—	—	**Questionnaire** preceded by a set of **Interviews**	Manufacturers of industrial products
Rodriguez & Padilla (2005)	Degree of the required specific knowledge	—	—	—	—	—	The degree of adaptation of the task to be performed to the peculiarities of the firm.	Cost of switching supplier	*Questionnaire 7-point Likert scale*	Hotel Industry *Canary Islands*
Walker & Weber (1984)	—	Level of supplier market competition (No of potential supplier	—	—	—	—	—	—	Longitidunal study (3 years)	Auto part Industry *Single* *large US automobile*
Barthelemy & Quelin (2002)	—	—	—	—	—	—	—	Extent of replaceability of the exchange partner (time & cost to switch vendor)	*Questionnaire 5-point Likert scale*	European & American firms (cross-industry)

Heide & John (1988)	—	—	—	—	—	—	—	Extent of replaceability of the exchange partner (time & effort to develop the required knowledge)	*Questionnaire 7-point Likert scale* manufacturers' agents	Distribution channel outsourcing Manufacturing firms *in 2 industries*: electrical and technical process equipment industries
Anderson & Schmittlein (1984) Anderson (1985)	* Knowledge about the firm / product * Access to confidential information * Relationship with sales account	—	—	—	—	—	—	—	*Questionnaire 7-point Likert scale* Sales Managers	*personal selling outsourcing in* the Electronic Components Industry
Heide & John (1990)	—	Extent of investment made by both the supplier and buyer in physical assets that are tailored to the relationship	—	—	—	—	Extent of investment made by both the supplier and buyer in procedures & routines that are tailored to the relationship	—	*Questionnaire 7-point Likert scale* manufacturing firms	155 Manufacturing firms Across several industries
Monteverde & Teece (1982)	Amount of engineering effort invested in developing the component	degree of standardisation of the parts to be outsourced					—	—	*Questionnaire 10-point Likert scale*	Automobile industry

Lyons (1995)	—	the degree of alternative use of the investment undertaken for the purpose of the agreement	—	—	—	—	—	—	*Questionnaire followed up by some interviews*	UK engeneering firms
Murray & Kotabe (1995)	Level of training, professional skills, and specialised know-how	level of major investment customised to a single user	—	Level of major investment customised to few users	—	—	—	—	*Questionnaire 5-point Likert scale*	
Murray & Kotabe (1999)			—		—	—	—	—		service sourcing strategy in US firms
Joskow (1987)	—	—	—	—	—	—	—	Degree of dependence Total plant utilisation of coal / total utility utilisation of coal	???	Duration of contract between Electric generation plant & coal suppliers
Palay (1984)	—	Non specific, moderately idiosyncratic, and highly idiosyncratic	—	—	—	—	—	—	Field Interviews	Rail industry *Transactions between rail carriers & shippers*

Deegan (1997)	—	—	—	—	—	—	—	degree of dependancy between the firm and the manager	*Questionnaire 7-point Likert scale*	application of the asset specificity concept on managerial expertise (across industries)
Zaheer & Venkatraman (1994)	* degree of customisation of skill level of employee * Extent of training	—	—	—	—	—	degree of customisation of workflows and routines in relation to the activity	—	*Questionnaire 7-point Likert scale (see appendix)*	U.S (P&C) insurance industry
Zaheer & Venkatraman (1995)		—	—	—	—	—		—		
Nishiguchi (1994)	(No subcontractor's employees) / (No of its regular customer)	scope of work contents of subcontracting (from complete assembly to discrete treatment)	No of km between subcontractor & the customer's premises	scope of work contents of subcontracting (from complete assembly to discrete treatment)	—	—	—	—	Field interviews + questionnaires	Electronics subcontracting in Japan & UK
Widener & Selto (1999)	* Level of required expertise + training + use of proprietary knowledge)	—	—	—	—	—	—	—	Survey Questionnaire (see appendix)	Internal auditing outsourcing (multi-industries)
Houston & Johnson (2000)	R&D / Sales ratio	—	—	—	—	—	—	—	Secondary Data *Wall Street Journal*	Contract governance .V. joint venture governance

Brouthers & Brouthers (2003)	Investment in training + use of proprietary knowledge	—	—	Extent of technological resources dedicated for the transaction	—	—	—	—	Postal questionnaire using 7-point Likert scale	Effect of specificity on entry mode in manufacturing & service firms (British – Dutch – German firms)
Ghani & Khan (2004)	* Annual hours spent by supplier personnel interacting with the buyer. * Hours per month spent by buyer personnel at supplier plant	% of supplier equipment that would need to be scrapped in the event that the buyer was to stop sourcing from supplier.	Distance between buyer & supplier plant in Km	—	—	—	—	**Overall relationship** * Assistance from the buyer * Information sharing and trust	Interviews with 75 auto part supplier to two leading car & tractor assemblers	Automotive Industry
Dragonetti *et al.* (2003)	—	—	—	—	—	—	—	Cost of switching supplier	Questionnaire from Seasame Database 5-point Likert Scale	Single business French firms engaged in production-related outsourcing and identified using the Seasame database
Brown & Potoski (2005)	Using definition	Using definition	Using definition			Using definition		Using the definition in broad terms	Questionnaire 5-point Likert Scale	A survey of public manager's perception of 64 common municipal services

Levy (1985)	—	Minimum efficient plant scale relative to industry sales *Minimum efficient required size / industry sales* Intensity of R&D expenditure: *Firm's R&D Exp / Firm sales*	Proximity of goods transported between stages *AV of the proportion of goods shipped less than 500 miles*	—	Intensity of advertising expenditure *Firm's Adv Exp / Firm sales*	—	—	Specificity was measured at the firm broad level	Secondary data *Annual Industrial File*	manufacturing firms in 37 industries
Klein & Roth (1990)	Degree of required Specialised knowledge in relation to company, product, competitors, and customers	Degree of requirement of specialised facilities such as plant / equipment	—	—	—	—	—	—	Mail survey Questionnaire *7-point Liker Scale* split into low, medium and high	Canadian Manufactures Exporters Across Industries
Heide & John (1992)	Degree of commitment of buyer in assisting supplier (time & money) Degree of additional training required by supplier	Degree of specialised tools and equipments required by both buyers and providers	—	Significance of investments in tooling dedicated to the relationship which was made by both parties	—	—	Degree of customised product system	Required adaptation due to technological norms from the both parties	Questionnaire *7-point Likert Scale*	Original equipments manufacturers (OEM) and their suppliers across several industries
Weiss & Anderson (1992)	Cost of required additional recruitment & training Degree of required Access to confidential information	Cost of required setting up	—	—	—	—	—	Potential Difficulties raised by supplier in case of contract termination	Survey Questionnaire *7-point Likert Scale*	Electronic components manufacturers

Klein *et al.* (1990)	Knowledge about product & customers Required access to confidential information	Investment in specialised facilities and equipments	—	—	—	—	Difficulty to learn the buyer's *ways of doing things*	—	Survey Questionnaire *7-point Likert Scale*	Canadian exporters across several industries
Stump & Heide (1996)	—	Degree of the required specialised tools and equipments	—	—	—	—	Required adaptation of the production system including customised routines and procedures	Significance of the resources spent to support the transaction	Questionnaire preceded by a set of interviews *7-point Likert Scale*	Chemical Manufacturers
Lieberman (1991)	—	Degree of required fixed investments in pipeline facilities Total fixed investment cost of the firm's downstream plants	—	—	—	—	—	—	—	Chemical industry
Maltz (1993)	Required time of training	—	—	—	—	—	—	Cost of switching provider required level of customisation in general terms	Survey Questionnaire *7-point Likert Scale*	A variety of manufacturing industries
Bucklin & Sengupta (1993)	Additional recruited staff required to obtain specialised knowledge for both the focal firm and its partner	Investments in equipment required to support the relationship From both the focal firm and its partner	—	—	—	—	—	—	Survey Questionnaire Reversed coded scale	98 co-marketing alliances In different industries

Appendix 2.3: Extracts from questionnaires in relation to asset specificity measurement

Poppo & Zenger, 1998

1) *To what degree must individuals acquire company-specific or division-specific information to adequately perform the IS function?*
2) *To what degree is your approach to this function is custom-tailored to the company?*
3) *How costly in terms of time and resources would it be to switch to outsourcing this function or to switch vendors if you are already outsourcing it* (Poppo & Zenger, 1998, p.866)

Wang (2002)

Questionnaire:

Please indicate the uniqueness of the following aspects involved in this particular software project:

a) *Functional / information requirements*
b) *operating procedures*
c) *business domain knowledge required*
d) *training for the developers*
e) *technical skills required*

Morill & Morill (2003)

Questionnaire:

Specialized knowledge of this company and its industry is necessary on the part of the external auditor in order to perform the following activities (1=strongly disagree; 7 = strongly agree)

a) Understanding the nature of our business
b) Planning the audit
c) Documenting and evaluating the internal control system
d) Testing the internal control system
e) Designing substantive tests
f) Performing substantive tests
g) Designing analytical review procedures
h) Performing analytical review procedures

Rodriguez and Padilla (2005)

Questionnaire: (7-point Likert-type scale)

1. *To what extent must the personnel performing the leisure activities have specific knowledge and information about how the hotel works?*
2. *To what extent do the tasks to be performed within the leisure activities require a degree of adaptation to the peculiarities and particularities of the hotel?*
3. *How costly would it be to outsource the leisure activities or to change the supplier if it were already outsourced? (consider the cost and time involved in finding outside service companies, in contract negotiation, in supervising contract compliance by the supplier, and in working together)*

Anderson and Schmittlein (1984)

Questionnaire: 1 (Strongly disagree) to 7 (Strongly agree)

(i) *It's difficult to learn all the ins and outs of our company that a salesperson needs to know to be effective*
(ii) *An experienced salesperson's inside information could do us a lot of damage if it got out*
(iii) *To be effective, the salesperson has to take a lot of time to get to know our accounts*
(iv) *Personal relationships between our salespeople and accounts have little influence on sales of our product line*
(v) *Amount of extra training needed in this firm by a new salesperson who has experience in the product class ..... Weeks*
(vi) *Importance of key accounts: % of accounts given special attention.*

Monteverde and Teece (1982)

Questionnaire:

Please examine the following list of 133 automotive components and indicate which of the non-captive items on the list could be procured as replacement units without necessarily having to know the manufacturer, make, and model of the vehicle for which the replacement is sought. That is, which of the following categories of parts may be expected to be largely common across several manufacturers' vehicles.

Murray and Kotabe (1995)

Questionnaire: (p.195)

In manufacturing the non-standardized components in product, the level of specific assets or resources (i.e.: unique assets or resources, such as configurations of work stations, use of special raw materials and specially trained labour, invested in the product that have little or no use for other purposes) is

(0 = Zero, 5 = Very high)

Zaheer and Venkatraman (1994)

Questionnaire:

Business Process Asset Specificity:

Please indicate the extent to which the following aspects of your commercial lines of the focal carrier are relatively similar to other carriers, or are significantly different from other carriers (e.g., unique or customised to suit the requirements of the focal carrier). Please circle the appropriate number)

	Relatively Similar			Moderate			significantly customised
(a) The extent of training needed for staff	1	2	3	4	5	6	7
(b) The skills level of our employees working	1	2	3	4	5	6	7
On the focal carrier's business							
(C) The (focal carrier) workflows & routines	1	2	3	4	5	6	7

Zaheer and Venkatraman (1994, p. 563)

Zaheer and Venkatraman (1995)

Questionnaire

(I) (Procedural asset specificity) Please indicate the extent to which the following are relatively similar to other carriers or are significantly different from other carriers (e.g., unique or customised to suit the requirements of the focal carrier)

(a) The focal carrier's workflows and routines
(b) The use of rating and other manuals of the focal carrier
(c) The forms needed for the focal carrier

(Significantly customised – Relatively similar to other carriers, 7-point scales).

(II) (Human asset specificity) Please indicate the extent to which the following are relatively similar to other carriers or are significantly different from other carriers (e.g., unique or customised to suit the requirements of the focal carrier)

(a) The skill levels of our employees working on the focal carrier's business

(b) The extent of training needed for staff
(c) The focal carrier's unwritten norms, expectations, guidelines, etc.

(Significantly customised – Relatively similar to other carriers, 7-point scales).

(Zaheer and Venkatraman, 1995, p.382)

Widener & Selto (1999)

Questionnaire:

- *In fiscal 1996, to approximately what proportion of major activities were the outsourced internal audit hours devoted?*
- *In fiscal 1996, how much time did the outside provider of internal audit services spend working with information proprietary to your company?*
- *In fiscal 1996, how much time did in-house internal audit personnel spend working with information proprietary to your company?*
- *In fiscal 1996, was the in-house internal audit department used as a training program for other positions?*
- *How long, on average, does an employee spend in the in-house internal audit department before being rotated to another position within the company?*
- *In fiscal 1996, what was the approximate amount of time your in-house internal audit department spent on the following activities?*

Widener & Selto (1999, p.69-70)

Heide & John (1990, p. 30)

Likert 7-point scale: "strongly disagree / strongly agree

Buyer's specific investment

- *We have made significant investments in tooling and equipment dedicated to our relationship with this supplier.*
- *Our production system has been tailored to using the particular items bought from this supplier*

Supplier's specific investment

- *The procedures and routines developed by this supplier as part of their relationship with our company are tailored to our particular situation*
- *Our company has some unusual technological standards and norms that have required extensive adaptation by the supplier.*

Brouthers & Brouthers (2003, p. 1188)

- How do you rate the training programme in terms of preparing personnel to provide your service or produce your product (1= well below average, 7= well above average)?

- How do you rate your firm's potential to create new and creative products and services (1= well below average, 7= well above average)?
- How many technological resources does your firm have to handle international expansion (1= few resources, 7= many resources).

Ghani & Khan (2004, p. 92)

Interview: All measures on scale of 1 "not at all to 5 "to a very great extent

i) The level of assistance from the buyer:

* Received technical training

* Assistance in procuring raw materials

* Assistance when production started

* Assistance in improving delivery

* Assistance in improving prouduct quality

ii) The level of information sharing and trust:

* Share production cost information with buyer

* Receive cooperation in reaching fair price

* Buyer shares future plans

Dragonetti *et al.* (2003, p. 22)

Questionnaire: Measures on 5-point Likert Scale from Low to High

For your company, replacing your main suppliers will generate switching costs which are:

Low *Medium / Low* *Medium* *Medium /High* *High*

Nb: the same article measured also the degree of learning by looking at the intensity of information exchange.

Your level of information concerning your main suppliers is:

Production Costs: *Low* *Medium / Low* *Medium* *Medium / High* *High*

Production Processes: *Low* *Medium / Low* *Medium* *Medium / High* *High*

Maltz (1993, p. 48)

	Not at all						A
Great Deal							
For this customer, the delivery carrier must customize its servive	1	2	3	4	5	6	7
If you replaced the delivery carrier, costs would increase during the transition	1	2	3	4	5	6	7
How much time would it take another carrier to learn to serve the customer as	1	2	3	4	5	6	7
well as the current carrier does?							

Klein *et al.* (1990, p. 202)

1. It is difficult for an outsider to learn our ways of doing things.
2. To be effective, a salesperson has to take a lot of time to get to know the customers
3. It takes a long time for a salesperson to learn about this product thoroughly
4. A salesperson's inside information on our procedures would be very helpful to our competitors
5. Specialised facilities are needed to market this product
6. A large investment in equipment and facilities is needed to market this product

Heide & John (1992, p. 37)

7-point Likert scale: Strongly disagree / strongly agree

1. We have made significant investments in tooling and equipment dedicated to our relationship with this supplier
2. This supplier has unusal technological norms and standards, which have required adaptation on our part
3. Training and qualfying this supplier has involved substantial commitements of time and money
4. Our production system has been tailored to using the particular items bought from the supplier
5. Gearing up to deal with this supplier requires highly specialised tools and equipment

Masten *et al.* (1991, p. 14)

10-point Likert scale:

1. the degree to which facilities and equipments used in the production process are specific to this application. (PHYSICAL)

2. The degree to which skills, knowledge or experience of workers are to specific to this application (HUMAN)

3. a ranking of the importance of having the component of perfroming the task on schedule. (TEMPORAL)

Brown and Potoski (2005, p. 355)

5-point Likert scale

Asset Specificity: Degree of specialised investments refers to whether specialised investments are required to produce the service. By special investments, we mean investments that apply to the production of one service but are very difficul to adapt for the production of other services. These specialised investments include:

1) the use of a specific location that is movable only at agreat cost;
2) the use of highly specialised human skills that cannot be put tp work for other purposes;
3) the use of specialised tools or a complex system designed for a single purpose; or
4) the requirement that the service reach the user within a relatively limited period of time or the quality of the srevice greatly diminishes

Appendix 2.4: Extracts from questionnaires used by key empirical studies

source	Example of questions
Adapted from Goodman *et al.* (1995, p. 1323)	***Communication*** : When we have enquiries in relation to the service / product provided, provider's employees respond: With Accurate information With Complete set of information In a timely, prompt manner ***Delivery Pbs:*** During the last 12 months, have you had any problem with the activity / service being outsourced ***Involvement:*** Frequency of visit made to the vendor's premises ***Overall satisfaction*** 11-point likert scale How satisfied are you overall with: 1) Quality of service (consistent, timely, accurate) 2) meeting performance standards, 3) providing reasonable rate ***Intention to switch vendor*** 7-point Likert scale Let's say that there is an alternative company that could deliver the service you are currently outsourcing, how inclined would you be to switch your current provider for the each of the following situations: a) the alternative company could provide a service comparable to the one offered by your current provider at a comparable price b) the alternative company could provide better service at a comparable price c) the alternative company could provide same service at a 1% lower rate d) the alternative company could provide same service at a 10% lower rate
Lee & Kim (1999, p. 59)	***Outsourcing performance (business perspective)*** 1. we have been able to refocus on core business 2. we have enhanced our IT competence 3. we have increased access to skilled personnel 4. we have enhanced economies of scale in human resources 5. we have enhanced economies of scale in technological resources 6. we have increased control of IS expenses 7. we have reduced the risk of technological obsolescence 8. we have increased access to key information technologies 9. we are satisfied with our overall benefits from outsourcing
Grover et al. (1996, p. 115)	7 point-Likert Scale ***Item measuring success of outsourcing*** 1. we have been able to refocus on core business 2. we have enhanced our IT competence 3. we have increased access to skilled personnel

	4. we have enhanced economies of scale in human resources 5. we have enhanced economies of scale in technological resources 6. we have increased control of IS expenses 7. we have reduced the risk of technological obsolescence 8. we have increased access to key information technologies 9. we are satisfied with our overall benefits from outsourcing ***Items Measuring expected Tangibles and Reliability of service quality*** *Tangibles* Excellent service providers will have modern-looking IT facilities The physical IT facilities at excellent service providers should be visually appealing Employees of excellent service providers should be visually appealing Materials associated with the service [such as pamphlets or statement] will be visually appealing *Reliability* When excellent service providers promise to do sthg by a certain time, they will do so. When customers have a pb, excellent service providers will show a sincere interest in solving it Excellent service providers will perform the service right the first time Excellent service providers will provide their services at the time they promise to do so. Excellent service providers will insist on error-free records
Wang (2002, p. 177)	5-point Likert Scale (using Grover's et al., 1996 nine items outsourcing success scale) (SUC1) focus on core business (*dropped due the failure to reach the level of practical significance*) (SUC2) increase IS competence (SUC3) access to skilled personnel (SUC4) cost savings on human resources (SUC5) cost savings on technological resources (SUC6) control of IS expenses (SUC7) avoidance of obsolescence (SUC8) access to key IS (SUC9) overall successfulness
Lever (1997)	5-point Likert Scale (1=low 5=high) *I'm satisfied with the work performance of the activity *There are very frequent complaints about this area *How effective is this area?

Appendix 4.1

Date: as postmark

Dear Director,

You are being invited to take part in a research survey on 'Managing Outsourcing Relationships'. Before you decide whether or not to take part, please let us highlight why the research is being undertaken.

As you are aware, managing outsourcing activities **previously undertaken In-house and now sub-contracted to external suppliers** has become a common feature of the contemporary business landscape, with many companies resorting to outsourcing to increase quality, efficiency and more generally to deal with the challenges of the rapidly changing and increasingly competitive marketplace. This survey (which is part of a doctoral research project undertaken at, and funded by Oxford Brookes University) aims to shed light on the factors that are likely to affect outsourcing performance.

The industry in which your company operates is one of the few that have been carefully selected for the purpose of this survey (2400 companies are being contacted) and, therefore, your *voluntary* participation would make a valuable contribution to the success of this research project.

We would be very grateful if you could find the time to complete the attached questionnaire, or identify a suitable person in your company who could do so. The information you provide will be kept confidential and will be used for the purpose of this study only. No individual company names or personnel will be identified and/or divulged. If you wish to receive feedback on the findings of this study, please complete and return the tear off sheet provided at the end of the questionnaire.

We look forward to receiving your completed questionnaire and we thank you very much for your kind cooperation and valuable insights.

Best regards,

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OXFORD
BROOKES
UNIVERSITY

'Managing Outsourcing Relationships'
A Survey Conducted by Oxford Brookes University

The purpose of this survey is to investigate how companies manage relationships with their suppliers and what factors are likely to affect outsourcing performance. For this survey, which is part of a doctoral research project undertaken at, and funded by Oxford Brookes University, outsourcing is defined as **activities previously undertaken in-house and now sub-contracted to external suppliers.** Your *voluntary* participation will be highly valuable for us in order to identify critical success factors in managing outsourcing relationships.

This research project has received clearance by Oxford Brookes University's Research Ethics Committee. In accordance with the University's policy of Academic Integrity, the returned questionnaires and the electronic data generated in the course of the research will be kept securely for a period of five years after the completion of the project. The questionnaire will take only about 20 minutes to complete. The information you provide will be used for the purpose of this study only. We assure complete confidentiality and anonymity of this information and of the names of the companies taking part in this survey. For the sole purpose of follow-up, an identifying code is used.

Upon completion, please return the questionnaire within three weeks from receipt using the pre-paid envelope enclosed. If you require additional information about the survey, please contact Dr Glauco De Vita (Oxford Brookes University Business School, Wheatley Campus, Wheatley, Oxford, OX33 1HX, UK; Email: gde-vita@brookes.ac.uk). If you have any concerns about the conduct of this project, you can contact the Chair of the University's Ethics Committee (Email: ethics@brookes.ac.uk). If you would like to keep this information sheet, please tear along the dashed line.

If you choose not to participate in this survey, I would be very grateful if you would indicate the reason(s) by ticking the appropriate box(es) on page 8 of the questionnaire and return it using the pre-paid envelope enclosed.

Screening Questions

Q1. Has your company undertaken any outsourcing projects during the past five years?

- ❑ Yes (in this case, please specify the number of outsourcing projects and then go to Q2).

  Number of outsourcing projects: ……..

- ❑ No (in this case, please tick the box and return the questionnaire in the enclosed pre-paid envelope).

Q2. Please identify **one** of the most significant activities that is being outsourced by your company.

The activity is: ……

Q3. Your company's decision for outsourcing this activity was motivated by the desire to:

- ❑ Ensure a better quality product or service
- ❑ Achieve cost savings
- ❑ Gain better access to skilled personnel
- ❑ Gain access to specialised equipment or technology outside your core business
- ❑ Allow your company to concentrate internal resources on core business
- ❑ Other reason. Please specify ……

Q4. For how long has your company outsourced the above activity to this supplier?

…… year(s) and …… month(s).

Q5. Had your company already worked with this supplier before outsourcing the activity of reference (i.e. the activity identified in your answer to Q2)?

- ❑ No
- ❑ Yes

If yes, please specify for how long: ……year(s) and ……month(s); and the nature of this relationship:……

Note: From now on, please answer the questions with reference to the outsourcing activity identified in your answer to Q2.

Section A: About the context of the outsourcing relationship

Please indicate the extent to which you agree or disagree with the following statements (1= strongly disagree; 7= strongly agree).

Intangible Investments

1.	Your company has recruited additional staff for the sole purpose of managing the outsourcing relationship.	1	2	3	4	5	6	7
2.	Your company has acquired new knowledge in order to adapt to the specific technological norms of your supplier.	1	2	3	4	5	6	7
3.	Your company has invested considerably in the training of personnel for the purpose of the relationship with your supplier.	1	2	3	4	5	6	7
4.	Your supplier has made a high degree of adaptation (e.g. via training) in order to provide the customised service required by your company.	1	2	3	4	5	6	7
5.	Your supplier has customised its own workflows and routines to the peculiarities of your company.	1	2	3	4	5	6	7
6.	Your supplier faced initial difficulties in learning and adapting to your company's way of doing things.	1	2	3	4	5	6	7
7.	If you were to change your supplier, it would take a long time for a new supplier to serve you as well as the current one.	1	2	3	4	5	6	7

Tangible investments

1.	Your company has invested in highly specialised equipment for the sole purpose of dealing with your supplier.	1	2	3	4	5	6	7
2.	A significant amount of your company's equipment would need to be scrapped should your outsourcing relationship with this supplier cease.	1	2	3	4	5	6	7
3.	Your supplier has invested in highly specialised equipment and facilities that were required for the purpose of the relationship with your company.	1	2	3	4	5	6	7
4.	Your supplier has invested in highly specialised equipment and facilities that cannot easily be used in other applications outside the relationship with your company.	1	2	3	4	5	6	7

Site-related investments

1.	Your supplier has relocated the whole or part of its operations for the purpose of being nearer to your company since close proximity is important to the outsourcing relationship.	1	2	3	4	5	6	7
2.	Your supplier has relocated the whole or part of its operations for the sole purpose of the outsourcing relationship with your company and, hence, this relocation has little value outside this relationship.	1	2	3	4	5	6	7
3.	Your supplier has relocated some of its operations or assets in order to improve its services towards your company.	1	2	3	4	5	6	7
4.	The outsourcing relationship requires your supplier to be located near your company.	1	2	3	4	5	6	7

Additional capacity

1.	Your supplier has made extra investments in order to expand its production capacity and to be able to meet your needs.	1	2	3	4	5	6	7
2.	Your supplier has expanded its production capacity in the hope of a long-term relationship with your company.	1	2	3	4	5	6	7
3.	Your supplier's sales to your company represent an important share of your supplier's total sales.	1	2	3	4	5	6	7
4.	Your supplier could easily re-sell extra output or make use of additional capacity in other applications outside the outsourcing relationship with your company.	1	2	3	4	5	6	7
5.	Should your outsourcing relationship cease, your supplier would be left with substantial unsold output or excess capacity (e.g. extra staff).	1	2	3	4	5	6	7
6.	For the purpose of the outsourcing relationship, your company has made additional investments that would result in excess capacity in the event of contract termination.	1	2	3	4	5	6	7
7.	For the purpose of the outsourcing relationship, your company has made additional investments in quality control facilities which are likely to result in excess capacity in the event of contract termination.	1	2	3	4	5	6	7
8.	In order to cope with the 'weight' of the relationship with this supplier, your company has made additional investments in communication facilities that are likely to result in excess capacity in the event of contract termination.	1	2	3	4	5	6	7

Punctuality

1.	The product or service provided by your supplier requires timely delivery.	1 2 3 4 5 6 7
2.	In the relationship with your supplier, precise scheduling is very important.	1 2 3 4 5 6 7
3.	Punctual delivery from your supplier is crucial; hence any delay will result in a significant cost to your company (e.g. loss of clients).	1 2 3 4 5 6 7
4.	In the event of delay from your supplier, your company can easily get the same product / service from another supplier.	1 2 3 4 5 6 7

Reputation

1.	In the industry in which your company operates, you cannot afford receiving a low quality product or service from your supplier since this will negatively affect your own reputation.	1 2 3 4 5 6 7
2.	Given the importance of your company in the market, your supplier must do its utmost to maintain the quality of service provided to your company.	1 2 3 4 5 6 7
3.	Any underperformance from your supplier will result in a highly negative effect on your company's reputation.	1 2 3 4 5 6 7

Tailored business procedures

1.	Your company has established procedures and routines tailored to the relationship with your supplier.	1 2 3 4 5 6 7
2.	The outsourcing relationship has entailed NO changes for your employees.	1 2 3 4 5 6 7
3.	The outsourcing relationship has entailed significant changes for the overall operations of your company.	1 2 3 4 5 6 7
4.	The outsourcing relationship has entailed significant restructuring and downsizing (e.g. redundancies) in your company.	1 2 3 4 5 6 7

Importance of the activity being outsourced

1. The activity being outsourced significantly contributes to the profitability of your company. 1 2 3 4 5 6 7

2. The activity being outsourced involves direct contact between your supplier and your end customer. 1 2 3 4 5 6 7

3. The activity being outsourced enables your company to differentiate itself from its competitors. 1 2 3 4 5 6 7

4. The activity being outsourced is regarded by your company as an activity of high strategic importance. 1 2 3 4 5 6 7

5. Prior to being outsourced, the activity was performed 'in-house':

   ❑ Efficiently/ highly efficiently ❑ About average ❑ Inefficiently/ highly inefficiently

Section B: About the characteristics of the outsourcing relationship

Please indicate the extent to which you agree or disagree with the following statements (1= strongly disagree; 7= strongly agree).

1. Your company and the supplier have an extremely collaborative relationship. 1 2 3 4 5 6 7

2. Your company and the supplier share both short- and long-term goals. 1 2 3 4 5 6 7

3. No major disputes have so far taken place between your company and this supplier. 1 2 3 4 5 6 7

4. When your company has queries in relation to the service or product provided, the supplier's employees promptly respond with accurate information. 1 2 3 4 5 6 7

5. Your company and the supplier do NOT generally keep each other's promises. 1 2 3 4 5 6 7

6. Your company would be inclined to switch to an alternative supplier if the latter could provide a service comparable to the one offered by the current supplier at a slightly lower price. 1 2 3 4 5 6 7

7. Your supplier is always willing to provide assistance to your company. 1 2 3 4 5 6 7

Section C: Outsourcing performance

Please indicate the extent to which you agree or disagree with the following statements (1= strongly disagree; 7= strongly agree).

1.	Your company is very satisfied with the overall benefits obtained from outsourcing this activity.	1	2	3	4	5	6	7
2.	You company is very satisfied with the quality of the service received in terms of consistency, timeliness and accuracy.	1	2	3	4	5	6	7
3.	Your company is very satisfied with this supplier's responsiveness to problems or queries.	1	2	3	4	5	6	7
4.	The service level received from this supplier has exceeded your company's expectations.	1	2	3	4	5	6	7
5.	Outsourcing the activity of reference has allowed your company to concentrate own resources (e.g. staff) on core activities.	1	2	3	4	5	6	7
6.	By outsourcing the activity your company has benefited from higher quality.	1	2	3	4	5	6	7
7.	By outsourcing the activity your company – via your supplier - has benefited from better access to skilled personnel.	1	2	3	4	5	6	7
8.	By outsourcing the activity, your company has benefited from greater scale economies achievable by your supplier.	1	2	3	4	5	6	7
9.	By outsourcing the activity, your company has removed the need to invest in certain equipment (now under the governance of your supplier) and reduced the risk of technological obsolescence.	1	2	3	4	5	6	7
10.	Your company has NOT achieved the target level of cost savings expected by outsourcing this activity.	1	2	3	4	5	6	7
11.	Overall, the objectives set by your company in relation to the outsourcing project have been met.	1	2	3	4	5	6	7

Section D: General Questions

1. How many employees do you have in your company?
   .....

2. What was the annual turnover of your company at the end of your financial year 2005? .....

3. Which industry does your company operate in?

- ❑ IT
- ❑ Telecommunication
- ❑ Hotel
- ❑ Banking & finance
- ❑ Other industry. Please specify: .....

4. In which year was your company first established? .....

5. What is your job title? .....

Thank you for your valuable time and cooperation.
Your insights are extremely important for this research project.

If you choose not to participate in this survey, please indicate the reason(s) by ticking the appropriate box(es) and return the non-completed questionnaire in the pre-paid envelope enclosed.

- ❑ I am not aware of any activities being outsourced by our company.
- ❑ I do not have time to complete this questionnaire.
- ❑ I am not the right person to fill in this questionnaire (If so, please kindly forward it to a suitable colleague).
- ❑ Other reason(s). Please specify .....

For participants who would like to receive a copy of the summary of findings, please tear along the dashed line, provide your preferred contact details below and return this sheet separately to the same address indicated at the beginning of the questionnaire.

Name: .....

Mailing address: .....

E-mail: .....

Appendix 4.2: Examples of adjustments made during the pilot-testing process

	Raised issues	Adjustment
Pre-testing through the consultation of experts	The questionnaire requires more than 15 minutes to fill-in (which was indicated in the original version of the survey). This comment has been mentioned by most experts who were consulted.	In accordance with the UREC recommendations, *'15 minutes'* was replaced by *'about 20 minutes'*.
	Question 6 (in page 3) was originally as follows: *"For the purpose of the outsourcing relationship, your company has made <u>little</u> additional investments that <u>are likely</u> to result in excess capacity in the vent of contract termination"* This item was described by few experts as one that poorly discriminate between high and low scores. Similarly, question 2 (in the tailored business procedure section on page 4) was originally as follows: *"the outsourcing relationship has entailed <u>little</u> changes for your employees"*	As a result, the word 'little' was omitted and the term 'are likely' was replaced by 'would'. The item became: *"For the purpose of the outsourcing relationship, your company has made additional investments that are would result in excess capacity in the vent of contract termination"* As for question 2, the term 'little' has been replaced by 'no' The item became: *"the outsourcing relationship has entailed <u>no</u> changes for your employees"*
	Originally, Q3 & Q4 (in the mutual relationship section on p. 5) made reference to *investment* without specifying what kind of investment both items are talking about. Q3: If your company switched to a competing supplier, it would lose the investment made in this particular outsourcing relationship. Q4: Compared to your supplier's investment in this outsourcing relationship, your company has invested: *More* *the same* *less*	As a result, the bracket (tangible / intangible) was added after the word investment to refer back to those stated earlier in the questionnaire (on p. 2). The old items became: Q3: : If your company switched to a competing supplier, it would lose the investment (tangible / intangible) made in this particular outsourcing relationship. Q4: Compared to your supplier's investment (tangible / intangible) in this outsourcing relationship, your company has invested: *More* *the same* *less*

	The majority of respondents who took part in the full piloting process seem to have missed to pay attention to the negation that was deliberately employed to form reversed items (eg. Q2 in the tailored business procedures; Q5 section B; Q10 section C).	After consulting with a few of the respondents concerning this issue, all of them mentioned that they did not pay attention to the negation 'not' and suggested that it would be better to write the negation in capital letter so as to attract the attention of the participant.
	Some respondents missed the outsourcing definition which was in the cover page that was not passed to them by their colleagues. They responded to question 5 on page 5 *by "never been performed in-house"*	As a result, the term outsourcing was defined again in the information sheet of the questionnaire and was highlighted on bold in both the cover letter and the information sheet.
Full piloting through the administration of the questionnaire to 50 companies	The site-related investments section originally included five items. Q4 was misinterpreted by a number of respondents (since Q3 & Q4 were dependent). The items were originally as follow: *Q3: your supplier has relocated some of its operations or assets to improve its services towards your company.* *Q4: Given their location, these assets cannot easily be used by your supplier for other purposes or applications.*	Consequently, Q4 was dropped and the old Q5 (which became Q4) was reformulated as follow: *Q4: The outsourcing relationship requires your supplier to be located near your company.* (see the note at the end of the table)
	In the general questions section (section D), an item, asking the respondent about the length of the period during which he/she has been working with the company, was included. *Q6: How long have you been working in this company?* A number of respondents seemed to be uncomfortable with the above-mentioned item and suggested not to include it unless it is really crucial.	Since the information about the length of the period during which the respondent has been working within the company was not really crucial, it has been decided to drop this item.
	Q3 & Q4 (in the tangible investment section, on p. 2) were originally stated as follows: Q3: your supplier has invested in specialized equipment required to undertake the activity of reference. Q4: your supplier can easily make use of <u>this</u> equipment in other applications outside the relationship with your company. The above two items were clearly dependent.	Consequently, the two items were reformulated as follows: Q3: Your supplier has invested in highly specialised equipment and facilities that were required for the purpose of the relationship with your company. Q4: Your supplier has invested in highly specialised equipment and facilities that cannot easily be used in other applications outside the relationship with your company. (see the following note)

Note: A reliability test was carried on the set of responses received during the full pilot testing process. The following table indicates the different values of the Cronbach's Alpha for each construct. These were statistically obtained using the S.P.S.S software. Although the literature warned against the over-reliance on such tests at an early stage the pilot-testing process, the Cronbach test was used in an attempt to gain an idea about the extent to which constructs were demonstrating an acceptable level of reliability.

	hr	ph	site	dedi	temp	brand	procd	collab	Perf
Alpha	0.726	(0.223)	0.278	0.737	0.776	0.438	0.713	0.899	0.831

As can be seen from the above table, both the tangible investment (physical asset specificity) and the site specificity constructs showed a particularly low level of reliability. Having had a deeper look at the item-total statistic table for both constructs, it was noticed that in both cases the main problem stemmed from item 4. Indeed, deletion of item 4 had a big impact on the alpha value which became 0.632 in the physical asset specificity construct and 0.656 in the site specificity construct. Consequently, actions were taken to adjust both items (see the adjustment made as highlighted in the first table).

Appendix 4.3: Ethics committee approval letter

University Research Ethics Committee
Wheatley Campus, Wheatley, Oxford OX33 1HX UK
t. +44 (0)1865 485741
ethics@brookes.ac.uk
www.brookes.ac.uk/research/ethics/ethicshome.html

Dr Glauco De Vita
Business School
Oxford Brookes University
Wheatley Campus

28 June 2006

Dear Dr De Vita,

UREC Registration No: 060216- Does the degree of asset specificity in outsourcing transactions affect outsourcing performance? An empirical analysis of outsourcing ventures by British Firms

Thank you for submitting the application for your research student Arafet Tekaya to the University Research Ethics Committee. The Committee reviewed the application at its meeting on 20 June 2006, and found it to be a low risk study with no significant ethical problems, as it uses a questionnaire to professional people asking about their work. They have therefore agreed full ethics approval.

The UREC approval period for this study is two years from the date of this letter, so until 29 June 2008. If you need the approval to be extended please do contact me nearer the time of expiry. The committee did make several suggestions, which while not conditions of approval; they would like you to consider:

1. The participant information sheet is in two parts – a covering letter and an introductory page – and it might work better as one document;

2. If participants wish to receive a copy of the summary of findings, it would be better to have a tear off or separate sheet at the end of the questionnaire that they could return. This would ensure that the questionnaire remained anonymous.

3. Several members of the committee noted that the questionnaire is being sent to HR directorates, but not to Finance directorates and wondered if it was worth including the latter as payroll is frequently a candidate for outsourcing.

4. The committee were unsure that the questionnaire could be completed in 15 minutes and have asked that you change the wording to 'less than 30 minutes'.

I hope you find these comments helpful. If you need any further clarification, please do contact me.
In order to monitor studies approved by the University Research Ethics Committee, we will ask you to provide a (very brief) report on the conduct and conclusions of the study in a year's time. If the study is completed in less than a year, could you please contact me and I will send you the appropriate guidelines for the report.

Yours sincerely

Teresa Smallbone
Chair
University Research Ethics Committee

Appendix 5.1: Non response Bias

One way ANOVA test (early and late respondents)

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
hr1b: Your company has recruited additional staff for the sole purpose of managing the outsourcing relationship.	Between Groups	.407	1	.407	.155	.694
	Within Groups	354.031	135	2.622		
	Total	354.438	136			
hr2b: Your company has acquired new knowledge in order to adapt to the specific technological norms of your supplier.	Between Groups	.245	1	.245	.081	.777
	Within Groups	409.200	135	3.031		
	Total	409.445	136			
hr3b: Your company has invested considerably in the training of personnel for the purpose of the relationship with your supplier.	Between Groups	1.285	1	1.285	.432	.512
	Within Groups	401.431	135	2.974		
	Total	402.715	136			
hr3s: Your supplier has made a high degree of adaptation (e.g. via training) in order to provide the customised service required by your company.	Between Groups	.012	1	.012	.003	.958
	Within Groups	563.959	135	4.177		
	Total	563.971	136			
hr4s: If you were to change your supplier, it would take a long time for a new supplier to serve you as well as the current one.	Between Groups	8.117	1	8.117	2.210	.139
	Within Groups	495.781	135	3.672		
	Total	503.898	136			
ph1b: Your company has invested in highly specialised equipment for the sole purpose of dealing with your supplier.	Between Groups	1.544	1	1.544	.986	.323
	Within Groups	211.376	135	1.566		
	Total	212.920	136			
ph2b:A significant amount of your company's equipment	Between Groups	.178	1	.178	.152	.697
	Within Groups	157.837	135	1.169		

	Total	158.015	136			
ph1s:Your supplier has invested in highly specialised equipment and facilities that were required for the purpose of the relationship with your company.	Between Groups	.865	1	.865	.318	.574
	Within Groups	366.931	135	2.718		
	Total	367.796	136			
ph2s:Your supplier has invested in highly specialised equipment and facilities that cannot easily be used in other applications outside the relationship with your company.	Between Groups	.022	1	.022	.009	.925
	Within Groups	328.548	135	2.434		
	Total	328.569	136			
dedi1s:Your supplier has made extra investments in order to expand its production capacity and to be able to meet your needs.	Between Groups	1.126	1	1.126	.351	.555
	Within Groups	433.429	135	3.211		
	Total	434.555	136			
dedi2s:Your supplier has expanded its production capacity in the hope of a long-term relationship with your company.	Between Groups	1.648	1	1.648	.422	.517
	Within Groups	527.359	135	3.906		
	Total	529.007	136			
dedi3s:Your supplier's sales to your company represent an important share of your supplier's total sales.	Between Groups	.409	1	.409	.133	.716
	Within Groups	416.408	135	3.085		
	Total	416.818	136			
dedi4sR:Your supplier could easily re-sell extra output or make use of additional capacity in other applications outside the outsourcing relationship with your company.	Between Groups	3.163	1	3.163	1.088	.299
	Within Groups	392.428	135	2.907		
	Total	395.591	136			
dedi5s:Should your outsourcing relationship cease, your supplier would be left with substantial unsold output or excess capacity (e.g. extra staff).	Between Groups	2.984	1	2.984	.838	.361
	Within Groups	480.490	135	3.559		
	Total	483.474	136			

dedi1b:For the purpose of the outsourcing relationship, your company has made additional investments that would result in excess capacity in the event of contract termination.	Between Groups	.028	1	.028	.018	.893
	Within Groups	206.031	135	1.526		
	Total	206.058	136			
dedi2b:For the purpose of the outsourcing relationship, your company has made additional investments in quality control facilities which are likely to result in excess capacity in the event of contract termination.	Between Groups	4.701	1	4.701	2.373	.126
	Within Groups	267.431	135	1.981		
	Total	272.131	136			
dedi3b:In order to cope with the 'weight' of the relationship with this supplier, your company has made additional investments in communication facilities that are likely to result in excess capacity in the event of contract termination.	Between Groups	.022	1	.022	.009	.924
	Within Groups	320.548	135	2.374		
	Total	320.569	136			
temp1b:The product or service provided by your supplier requires timely delivery.	Between Groups	.532	1	.532	.154	.695
	Within Groups	466.183	135	3.453		
	Total	466.715	136			
temp2b:In the relationship with your supplier, precise scheduling is very important.	Between Groups	.009	1	.009	.003	.958
	Within Groups	436.516	135	3.233		
	Total	436.526	136			
temp3b:Punctual delivery from your supplier is crucial; hence any delay will result in a significant cost to your company (e.g. loss of clients).	Between Groups	3.883	1	3.883	.971	.326
	Within Groups	540.102	135	4.001		
	Total	543.985	136			
temp4bR:In the event of delay from your supplier, your company can easily get the same product / service from another supplier.	Between Groups	3.061	1	3.061	.765	.383
	Within Groups	540.209	135	4.002		
	Total	543.270	136			

brand1b:In the industry in which your company operates, you cannot afford receiving a low quality product or service from your supplier since this will negatively affect your own reputation.	Between Groups	.099	1	.099	.032	.858
	Within Groups	413.376	135	3.062		
	Total	413.474	136			
brand2b:Given the importance of your company in the market, your supplier must do its utmost to maintain the quality of service provided to your company.	Between Groups	5.112	1	5.112	1.743	.189
	Within Groups	395.837	135	2.932		
	Total	400.949	136			
brand3b: Any underperformance from your supplier will result in a highly negative effect on your company's reputation.	Between Groups	.268	1	.268	.071	.790
	Within Groups	506.097	135	3.749		
	Total	506.365	136			
hr1s:Your supplier has customised its own workflows and routines to the peculiarities of your company.	Between Groups	.851	1	.851	.256	.614
	Within Groups	449.265	135	3.328		
	Total	450.117	136			
hr2s:Your supplier faced initial difficulties in learning and adapting to your company's way of doing things.	Between Groups	8.414	1	8.414	2.426	.122
	Within Groups	468.229	135	3.468		
	Total	476.642	136			
procd1b:Your company has established procedures and routines tailored to the relationship with your supplier.	Between Groups	2.372	1	2.372	.625	.431
	Within Groups	512.766	135	3.798		
	Total	515.139	136			
procd2bR:The outsourcing relationship has entailed NO changes for your employees.	Between Groups	1.268	1	1.268	.286	.594
	Within Groups	599.462	135	4.440		
	Total	600.730	136			
procd3b:The outsourcing relationship has entailed significant changes for the overall operations of your company.	Between Groups	11.244	1	11.244	3.886	.051
	Within Groups	390.552	135	2.893		
	Total	401.796	136			

procd4b:The outsourcing relationship has entailed significant restructuring and downsizing (e.g. redundancies) in your company.	Between Groups	4.167	1	4.167	1.366	.245
	Within Groups	411.731	135	3.050		
	Total	415.898	136			
Objec1:Outsourcing the activity of reference has allowed your company to concentrate own resources (e.g. staff) on core activities.	Between Groups	.513	1	.513	.274	.602
	Within Groups	252.932	135	1.874		
	Total	253.445	136			
Objec2:By outsourcing the activity your company has benefited from higher quality.	Between Groups	1.566	1	1.566	.914	.341
	Within Groups	231.383	135	1.714		
	Total	232.949	136			
Objec3:By outsourcing the activity your company - via your supplier - has benefited from better access to skilled personnel.	Between Groups	1.325	1	1.325	.644	.424
	Within Groups	277.609	135	2.056		
	Total	278.934	136			
Objec4:By outsourcing the activity, your company has benefited from greater scale economies achievable by your supplier.	Between Groups	.041	1	.041	.017	.896
	Within Groups	321.959	135	2.385		
	Total	322.000	136			
Objec5:By outsourcing the activity, your company has removed the need to invest in certain equipment (now under the governance of your supplier) and reduced the risk of technological obsolescence.	Between Groups	.007	1	.007	.002	.965
	Within Groups	463.731	135	3.435		
	Total	463.737	136			
Objec6R:Your company has NOT achieved the target level of cost savings expected by outsourcing this activity.	Between Groups	.036	1	.036	.018	.892
	Within Groups	259.848	135	1.925		
	Total	259.883	136			
Objec7:Overall, the objectives set by your company in relation to the outsourcing project have been met.	Between Groups	2.220	1	2.220	1.870	.174
	Within Groups	160.276	135	1.187		
	Total	162.496	136			

collab1:Your company and the supplier have an extremely collaborative relationship.	Between Groups	.503	1	.503	.324	.570
	Within Groups	209.716	135	1.553		
	Total	210.219	136			
collab2:Your company and the supplier share both short- and long-term goals.	Between Groups	1.206	1	1.206	.600	.440
	Within Groups	271.159	135	2.009		
	Total	272.365	136			
collab3:No major disputes have so far taken place between your company and this supplier.	Between Groups	2.828	1	2.828	.867	.353
	Within Groups	440.252	135	3.261		
	Total	443.080	136			
collab4:When your company has queries in relation to the service or product provided, the supplier's employees promptly respond with accurate information.	Between Groups	.010	1	.010	.006	.938
	Within Groups	218.209	135	1.616		
	Total	218.219	136			
collab5R:Your company and the supplier do NOT generally keep each other's promises.	Between Groups	2.314	1	2.314	1.682	.197
	Within Groups	185.657	135	1.375		
	Total	187.971	136			
collab6:Your supplier is always willing to provide assistance to your company.	Between Groups	1.139	1	1.139	.797	.374
	Within Groups	192.890	135	1.429		
	Total	194.029	136			
collab7R:Your company would be inclined to switch to an alternative supplier if the latter could provide a service comparable to the one offered by the current supplier at a slightly lower price.	Between Groups	3.308	1	3.308	1.100	.296
	Within Groups	406.123	135	3.008		
	Total	409.431	136			

Appendix 5.2: Non response Bias

Mann-Whitney U (early and late respondents)

Test Statistics[a]

	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
hr1b: Your company has recruited additional staff for the sole purpose of managing the outsourcing relationship.	1604.500	2132.500	-.483	.629
hr2b: Your company has acquired new knowledge in order to adapt to the specific technological norms of your supplier.	1659.000	2187.000	-.111	.911
hr3b: Your company has invested considerably in the training of personnel for the purpose of the relationship with your supplier.	1519.000	2047.000	-.867	.386
hr3s: Your supplier has made a high degree of adaptation (e.g. via training) in order to provide the customised service required by your company.	1660.500	2188.500	-.100	.920
hr4s: If you were to change your supplier, it would take a long time for a new supplier to serve you as well as the current one.	1409.500	1937.500	-1.392	.164
ph1b: Your company has invested in highly specialised equipment for the sole purpose of dealing with your supplier.	1455.000	1983.000	-1.481	.139

ph2b:A significant amount of your company's equipment would need to be scrapped should your outsourcing relationship with this supplier cease.	1616.000	2144.000	-.510	.610
ph1s:Your supplier has invested in highly specialised equipment and facilities that were required for the purpose of the relationship with your company.	1389.000	1917.000	-1.610	.108
ph2s:Your supplier has invested in highly specialised equipment and facilities that cannot easily be used in other applications outside the relationship with your company.	1578.000	2106.000	-.601	.548
site1s:Your supplier has relocated the whole or part of its operations for the purpose of being nearer to your company since close proximity is important to the outsourcing relationship.	1553.000	7118.000	-.872	.383
site2s:Your supplier has relocated the whole or part of its operations for the sole purpose of the outsourcing relationship with your company and, hence, this relocation has little value outside this relationship.	1545.500	7110.500	-.935	.350
site3sYour supplier has relocated some of its operations or assets in order to improve its services towards your company.	1585.500	7150.500	-.590	.555

site4s:The outsourcing relationship requires your supplier to be located near your company.	1551.500	7116.500	-.759	.448
dedi1s:Your supplier has made extra investments in order to expand its production capacity and to be able to meet your needs.	1557.000	2085.000	-.650	.516
dedi2s:Your supplier has expanded its production capacity in the hope of a long-term relationship with your company.	1569.000	2097.000	-.594	.553
dedi3s:Your supplier's sales to your company represent an important share of your supplier's total sales.	1578.500	2106.500	-.526	.599
dedi4sR:Your supplier could easily re-sell extra output or make use of additional capacity in other applications outside the outsourcing relationship with your company.	1422.500	1950.500	-1.329	.184
dedi5s:Should your outsourcing relationship cease, your supplier would be left with substantial unsold output or excess capacity (e.g. extra staff).	1518.000	2046.000	-.863	.388
dedi1b:For the purpose of the outsourcing relationship, your company has made additional investments that would result in excess capacity in the event of contract termination.	1594.000	2122.000	-.512	.609

dedi2b:For the purpose of the outsourcing relationship, your company has made additional investments in quality control facilities which are likely to result in excess capacity in the event of contract termination.	1570.000	7135.000	-.647	.518
dedi3b:In order to cope with the 'weight' of the relationship with this supplier, your company has made additional investments in communication facilities that are likely to result in excess capacity in the event of contract termination.	1659.500	2187.500	-.114	.909
hr6sR: Your supplier could easily re-use any specific knowledge that is required in the relationship with your company (e.g. knowledge of the industry).	1660.500	2188.500	-.101	.920
temp1b:The product or service provided by your supplier requires timely delivery.	1607.000	2135.000	-.387	.699
temp2b:In the relationship with your supplier, precise scheduling is very important.	1663.000	7228.000	-.089	.929
temp3b:Punctual delivery from your supplier is crucial; hence any delay will result in a significant cost to your company (e.g. loss of clients).	1507.000	2035.000	-.895	:371
temp4bR:In the event of delay from your supplier, your company can easily get the same product / service from another supplier.	1527.000	2055.000	-.798	.425

brand1b:In the industry in which your company operates, you cannot afford receiving a low quality product or service from your supplier since this will negatively affect your own reputation.	1509.000	2037.000	-.919	.358
brand2b:Given the importance of your company in the market, your supplier must do its utmost to maintain the quality of service provided to your company.	1416.000	1944.000	-1.369	.171
brand3b: Any underperformance from your supplier will result in a highly negative effect on your company's reputation.	1659.000	2187.000	-.110	.912
hr1s:Your supplier has customised its own workflows and routines to the peculiarities of your company.	1603.000	2131.000	-.398	.690
hr2s:Your supplier faced initial difficulties in learning and adapting to your company's way of doing things.	1377.500	1905.500	-1.559	.119
procd1b:Your company has established procedures and routines tailored to the relationship with your supplier.	1524.500	2052.500	-.803	.422
procd2bR:The outsourcing relationship has entailed NO changes for your employees.	1574.000	2102.000	-.547	.584

procd3b:The outsourcing relationship has entailed significant changes for the overall operations of your company.	1304.500	1832.500	-1.950	.051
procd4b:The outsourcing relationship has entailed significant restructuring and downsizing (e.g. redundancies) in your company.	1475.000	7040.000	-1.079	.281
collab1:Your company and the supplier have an extremely collaborative relationship.	1557.000	2085.000	-.648	.517
collab2:Your company and the supplier share both short- and long-term goals.	1541.500	7106.500	-.724	.469
collab3:No major disputes have so far taken place between your company and this supplier.	1550.000	7115.000	-.677	.498
collab4:When your company has queries in relation to the service or product provided, the supplier's employees promptly respond with accurate information.	1603.500	2131.500	-.403	.687
collab5R:Your company and the supplier do NOT generally keep each other's promises.	1435.500	7000.500	-1.323	.186
collab6:Your supplier is always willing to provide assistance to your company.	1620.500	7185.500	-.320	.749

collab7R:Your company would be inclined to switch to an alternative supplier if the latter could provide a service comparable to the one offered by the current supplier at a slightly lower price.	1472.000	7037.000	-1.081	.280
Objec1:Outsourcing the activity of reference has allowed your company to concentrate own resources (e.g. staff) on core activities.	1602.000	2130.000	-.408	.684
Objec2:By outsourcing the activity your company has benefited from higher quality.	1464.500	1992.500	-1.122	.262
Objec3:By outsourcing the activity your company - via your supplier - has benefited from better access to skilled personnel.	1524.500	2052.500	-.808	.419
Objec4:By outsourcing the activity, your company has benefited from greater scale economies achievable by your supplier.	1619.000	2147.000	-.320	.749
Objec5:By outsourcing the activity, your company has removed the need to invest in certain equipment (now under the governance of your supplier) and reduced the risk of technological obsolescence.	1676.500	2204.500	-.018	.986
Objec6R:Your company has NOT achieved the target level of cost savings expected by outsourcing this activity.	1663.500	2191.500	-.086	.931

Objec7:Overall, the objectives set by your company in relation to the outsourcing project have been met.	1430.500	1958.500	-1.316	.188

a. Grouping Variable: Before Follow up or after follow up

Appendix 5.3: Assessment of the randomness of the missing data in relation to "turnover" Independent-samples t-test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
hr1b: Your company has recruited additional staff for the sole purpose of managing the outsourcing relationship.	Equal variances assumed	.135	.714	-.382	135	.703	-.16940	.44310	-1.04572	.70692
	Equal variances not assumed			-.371	17.343	.715	-.16940	.45675	-1.13161	.79281
hr2b: Your company has acquired new knowledge in order to adapt to the specific technological norms of your supplier.	Equal variances assumed	1.382	.242	-.732	135	.465	-.34809	.47556	-1.28860	.59242
	Equal variances not assumed			-.861	19.623	.400	-.34809	.40428	-1.19245	.49627
hr3b: Your company has invested considerably in the training of personnel for the purpose of the relationship with your supplier.	Equal variances assumed	7.070	.009	-1.422	135	.157	-.66721	.46907	-1.59489	.26046
	Equal variances not assumed			-2.070	24.454	.049	-.66721	.32228	-1.33171	-.00272
hr3s: Your supplier has made a	Equal variances assumed	.997	.320	-.372	135	.710	-.20820	.55895	-1.31363	.89723

	Equal variances not assumed			-.391	18.113	.701	-.20820	.53305	-1.32758	.91119
hr4s: If you were to change your supplier, it would take a long time for a new supplier to serve you as well as the current one.	Equal variances assumed	.047	.830	-1.034	135	.303	-.54426	.52653	-1.58559	.49706
	Equal variances not assumed			-.966	17.028	.348	-.54426	.56338	-1.73274	.64421
ph1b: Your company has invested in highly specialised equipment for the sole purpose of dealing with your supplier.	Equal variances assumed	1.238	.268	-.650	135	.517	-.22295	.34308	-.90146	.45556
	Equal variances not assumed			-.850	21.587	.405	-.22295	.26236	-.76765	.32175
ph2b:A significant amount of your company's equipment would need to be scrapped should your outsourcing relationship with this supplier cease.	Equal variances assumed	2.893	.091	1.122	135	.264	.33060	.29465	-.25212	.91332
	Equal variances not assumed			.954	16.354	.354	.33060	.34661	-.40288	1.06408
ph1s:Your supplier has invested in highly specialised equipment and facilities that were required for the purpose of the relationship with your company.	Equal variances assumed	2.614	.108	-.769	135	.443	-.34645	.45063	-1.23766	.54476
	Equal variances not assumed			-1.054	22.716	.303	-.34645	.32871	-1.02691	.33401
ph2s:Your supplier has	Equal variances assumed	.918	.340	-.433	135	.666	-.18470	.42656	-1.02830	.65890

	Equal variances not assumed			-.532	20.352	.600	-.18470	.34712	-.90797	.53857
site1s:Your supplier has relocated the whole or part of its operations for the purpose of being nearer to your company since close proximity is important to the outsourcing relationship.	Equal variances assumed	.161	.689	-.113	135	.910	-.05355	.47531	-.99356	.88646
	Equal variances not assumed			-.122	18.520	.904	-.05355	.43770	-.97128	.86417
site2s:Your supplier has relocated the whole or part of its operations for the sole purpose of the outsourcing relationship with your company and, hence, this relocation has little value outside this relationship.	Equal variances assumed	.502	.480	-.250	135	.803	-.12022	.48134	-1.07215	.83172
	Equal variances not assumed			-.304	20.172	.764	-.12022	.39574	-.94526	.70483
site3sYour supplier has relocated some of its operations or assets in order to improve its services towards your company.	Equal variances assumed	1.834	.178	-.732	135	.466	-.39071	.53385	-1.44650	.66508
	Equal variances not assumed			-.967	21.827	.344	-.39071	.40388	-1.22870	.44728
site4s:The outsourcing	Equal variances assumed	.601	.440	.494	135	.622	.26995	.54672	-.81130	1.35119

	Equal variances not assumed			.466	17.106	.647	.26995	.57939	-.95188	1.49177
dedi1s:Your supplier has made extra investments in order to expand its production capacity and to be able to meet your needs.	Equal variances assumed	2.377	.125	.006	135	.996	.00273	.49090	-.96811	.97357
	Equal variances not assumed			.007	19.519	.995	.00273	.42014	-.87506	.88052
dedi2s:Your supplier has expanded its production capacity in the hope of a long-term relationship with your company.	Equal variances assumed	.523	.471	.561	135	.576	.30328	.54100	-.76664	1.37320
	Equal variances not assumed			.605	18.435	.553	.30328	.50168	-.74893	1.35549
dedi3s:Your supplier's sales to your company represent an important share of your supplier's total sales.	Equal variances assumed	1.548	.216	.851	135	.396	.40820	.47949	-.54008	1.35648
	Equal variances not assumed			.772	16.793	.451	.40820	.52886	-.70865	1.52504
dedi4sR:Your supplier could easily re-sell extra output or make use of additional capacity in other applications outside the outsourcing relationship with your company.	Equal variances assumed	.402	.527	.755	135	.451	.35301	.46739	-.57134	1.27735
	Equal variances not assumed			.673	16.667	.510	.35301	.52456	-.75540	1.46141
dedi5s:Should your outsourcing	Equal variances assumed	.033	.856	.632	135	.528	.32678	.51703	-.69574	1.34930

	Equal variances not assumed			.606	17.244	.552	.32678	.53900	-.80919	1.46274
dedi1b:For the purpose of the outsourcing relationship, your company has made additional investments that would result in excess capacity in the event of contract termination.	Equal variances assumed	.000	.987	1.526	135	.129	.51148	.33516	-.15136	1.17431
	Equal variances not assumed			1.617	18.228	.123	.51148	.31638	-.15261	1.17556
dedi2b:For the purpose of the outsourcing relationship, your company has made additional investments in quality control facilities which are likely to result in excess capacity in the event of contract termination.	Equal variances assumed	.754	.387	-.048	135	.962	-.01858	.38847	-.78685	.74969
	Equal variances not assumed			-.058	20.200	.954	-.01858	.31887	-.68331	.64615
dedi3b:In order to cope with the 'weight' of the relationship with this supplier, your company has made additional investments in communication facilities that are likely to result in excess capacity in the event of contract termination.	Equal variances assumed	.314	.576	-.450	135	.653	-.18962	.42131	-1.02284	.64361
	Equal variances not assumed			-.509	19.050	.617	-.18962	.37246	-.96904	.58981
temp1b:The product or service	Equal variances assumed	8.065	.005	2.262	135	.025	1.12951	.49936	.14192	2.11710

	Equal variances not assumed			3.359	25.131	.002	1.12951	.33627	.43713	1.82189
temp2b:In the relationship with your supplier, precise scheduling is very important.	Equal variances assumed	3.072	.082	1.927	135	.056	.93552	.48538	-.02440	1.89544
	Equal variances not assumed			2.450	20.991	.023	.93552	.38186	.14137	1.72967
temp3b:Punctual delivery from your supplier is crucial; hence any delay will result in a significant cost to your company (e.g. loss of clients).	Equal variances assumed	.275	.601	1.012	135	.314	.55355	.54717	-.52858	1.63568
	Equal variances not assumed			.989	17.412	.336	.55355	.55966	-.62509	1.73220
temp4bR:In the event of delay from your supplier, your company can easily get the same product / service from another supplier.	Equal variances assumed	.784	.378	.013	135	.990	.00710	.54888	-1.07841	1.09261
	Equal variances not assumed			.012	16.670	.991	.00710	.61576	-1.29400	1.30821
brand1b:In the industry in which your company operates, you cannot afford receiving a low quality product or service from your supplier since this will negatively affect your own reputation.	Equal variances assumed	.134	.715	.527	135	.599	.25191	.47835	-.69412	1.19794
	Equal variances not assumed			.493	17.036	.629	.25191	.51128	-.82662	1.33045
brand2b:Given the importance	Equal variances assumed	1.136	.288	1.167	135	.245	.54754	.46917	-.38034	1.47542

	Equal variances not assumed			1.004	16.432	.330	.54754	.54523	-.60583	1.70091
brand3b: Any underperformance from your supplier will result in a highly negative effect on your company's reputation.	Equal variances assumed	.541	.463	-.153	135	.879	-.08087	.52986	-1.12878	.96703
	Equal variances not assumed			-.137	16.720	.893	-.08087	.59033	-1.32796	1.16621
hr1s:Your supplier has customised its own workflows and routines to the peculiarities of your company.	Equal variances assumed	1.174	.281	.569	135	.570	.28415	.49901	-.70274	1.27104
	Equal variances not assumed			.641	18.991	.529	.28415	.44303	-.64316	1.21146
hr2s:Your supplier faced initial difficulties in learning and adapting to your company's way of doing things.	Equal variances assumed	.129	.720	-.180	135	.858	-.09235	.51406	-1.10900	.92430
	Equal variances not assumed			-.189	18.178	.852	-.09235	.48741	-1.11565	.93095
procd1b:Your company has established procedures and routines tailored to the relationship with your supplier.	Equal variances assumed	.478	.491	-.348	135	.729	-.18579	.53424	-1.24235	.87077
	Equal variances not assumed			-.366	18.168	.718	-.18579	.50701	-1.25027	.87868
procd2bR:The outsourcing relationship has entailed NO changes for your employees.	Equal variances assumed	.561	.455	-1.106	135	.271	-.63552	.57458	-1.77186	.50082
	Equal variances not assumed			-1.027	16.978	.319	-.63552	.61862	-1.94082	.66978
procd3b:The outsourcing	Equal variances assumed	.328	.568	-.100	135	.921	-.04699	.47201	-.98049	.88650

	Equal variances not assumed			-.089	16.682	.930	-.04699	.52863	-1.16393	1.06994
procd4b:The outsourcing relationship has entailed significant restructuring and downsizing (e.g. redundancies) in your company.	Equal variances assumed	.020	.887	.042	135	.966	.02022	.48024	-.92955	.96999
	Equal variances not assumed			.040	17.124	.969	.02022	.50781	-1.05058	1.09102
collab1:Your company and the supplier have an extremely collaborative relationship.	Equal variances assumed	.966	.327	-1.085	135	.280	-.36885	.33995	-1.04117	.30347
	Equal variances not assumed			-1.000	16.914	.332	-.36885	.36901	-1.14769	.40998
collab2:Your company and the supplier share both short- and long-term goals.	Equal variances assumed	.024	.876	-1.342	135	.182	-.51803	.38607	-1.28156	.24550
	Equal variances not assumed			-1.393	18.001	.181	-.51803	.37199	-1.29956	.26349
collab3:No major disputes have so far taken place between your company and this supplier.	Equal variances assumed	11.281	.001	-1.244	135	.216	-.61311	.49287	-1.58786	.36163
	Equal variances not assumed			-.904	15.542	.380	-.61311	.67798	-2.05382	.82759
collab4:When your company has queries in relation to the service or product provided, the supplier's employees promptly respond with accurate information.	Equal variances assumed	1.168	.282	.879	135	.381	.30492	.34688	-.38110	.99093
	Equal variances not assumed			1.028	19.538	.316	.30492	.29653	-.31456	.92440
collab5R:Your company and the supplier do NOT generally keep each other's promises.	Equal variances assumed	.687	.409	1.114	135	.267	.35792	.32139	-.27768	.99353
	Equal variances not assumed			1.395	20.707	.178	.35792	.25655	-.17606	.89191

collab6:Your supplier is always willing to provide assistance to your company.	Equal variances assumed	4.364	.039	.480	135	.632	.15738	.32774	-.49079	.80555
	Equal variances not assumed			.712	25.100	.483	.15738	.22090	-.29748	.61224
collab7R:Your company would be inclined to switch to an alternative supplier if the latter could provide a service comparable to the one offered by the current supplier at a slightly lower price.	Equal variances assumed	.718	.398	-.901	135	.369	-.42787	.47507	-1.36741	.51167
	Equal variances not assumed			-.994	18.722	.333	-.42787	.43046	-1.32973	.47399
Satis1:Your company is very satisfied with the overall benefits obtained from outsourcing this activity.	Equal variances assumed	1.737	.190	-.138	135	.891	-.05301	.38513	-.81467	.70865
	Equal variances not assumed			-.155	19.022	.878	-.05301	.34115	-.76698	.66097
Satis2:You company is very satisfied with the quality of the service received in terms of consistency, timeliness and accuracy.	Equal variances assumed	.701	.404	-.332	135	.740	-.13825	.41649	-.96195	.68545
	Equal variances not assumed			-.372	18.918	.714	-.13825	.37179	-.91666	.64015
Satis3:Your company is very satisfied with this supplier's responsiveness to problems or queries.	Equal variances assumed	.754	.387	-.355	135	.723	-.13825	.38895	-.90748	.63098
	Equal variances not assumed			-.363	17.838	.721	-.13825	.38067	-.93853	.66203
Satis4:The service level	Equal variances assumed	1.840	.177	-.851	135	.396	-.33607	.39490	-1.11706	.44493

	Equal variances not assumed			-1.000	19.607	.329	-.33607	.33606	-1.03797	.36584
Objec1:Outsourcing the activity of reference has allowed your company to concentrate own resources (e.g. staff) on core activities.	Equal variances assumed	.214	.644	-.871	135	.385	-.32568	.37385	-1.06504	.41367
	Equal variances not assumed			-.799	16.883	.435	-.32568	.40747	-1.18583	.53447
Objec2:By outsourcing the activity your company has benefited from higher quality.	Equal variances assumed	.011	.915	.691	135	.490	.24809	.35878	-.46147	.95765
	Equal variances not assumed			.671	17.351	.511	.24809	.36949	-.53026	1.02644
Objec3:By outsourcing the activity your company - via your supplier - has benefited from better access to skilled personnel.	Equal variances assumed	.821	.367	-1.211	135	.228	-.47377	.39118	-1.24740	.29986
	Equal variances not assumed			-1.072	16.623	.299	-.47377	.44181	-1.40751	.45997
Objec4:By outsourcing the activity, your company has benefited from greater scale economies achievable by your supplier.	Equal variances assumed	.077	.782	-.710	135	.479	-.29945	.42178	-1.13361	.53470
	Equal variances not assumed			-.634	16.680	.535	-.29945	.47251	-1.29782	.69892
Objec5:By outsourcing the	Equal variances assumed	.598	.441	.346	135	.730	.17541	.50689	-.82706	1.17788

	Equal variances not assumed			.304	16.561	.765	.17541	.57766	-1.04581	1.39663
Objec6R:Your company has NOT achieved the target level of cost savings expected by outsourcing this activity.	Equal variances assumed	.232	.631	.506	135	.614	.19180	.37927	-.55827	.94188
	Equal variances not assumed			.466	16.910	.647	.19180	.41190	-.67758	1.06119
Objec7:Overall, the objectives set by your company in relation to the outsourcing project have been met.	Equal variances assumed	.903	.344	-.952	135	.343	-.28470	.29918	-.87639	.30699
	Equal variances not assumed			-1.108	19.468	.281	-.28470	.25693	-.82158	.25219

Appendix 5.4: Assessment of the randomness of the missing data in relation to "turnover"

Mann-Whitney U Test

Test Statistics[a]

	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
hr1b: Your company has recruited additional staff for the sole purpose of managing the outsourcing relationship.	835.000	955.000	-.693	.488
hr2b: Your company has acquired new knowledge in order to adapt to the specific technological norms of your supplier.	826.500	946.500	-.636	.525
hr3b: Your company has invested considerably in the training of personnel for the purpose of the relationship with your supplier.	760.000	880.000	-1.131	.258
hr3s: Your supplier has made a high degree of adaptation (e.g. via training) in order to provide the customised service required by your company.	846.000	966.000	-.481	.630
hr4s: If you were to change your supplier, it would take a long time for a new supplier to serve you as well as the current one.	771.000	891.000	-1.004	.315
ph1b: Your company has invested in highly specialised equipment for the sole purpose of dealing with your supplier.	848.500	968.500	-.593	.553

ph2b:A significant amount of your company's equipment would need to be scrapped should your outsourcing relationship with this supplier cease.	798.500	8301.500	-1.257	.209
ph1s:Your supplier has invested in highly specialised equipment and facilities that were required for the purpose of the relationship with your company.	867.000	987.000	-.360	.719
ph2s:Your supplier has invested in highly specialised equipment and facilities that cannot easily be used in other applications outside the relationship with your company.	913.500	1033.500	-.012	.990
site1s:Your supplier has relocated the whole or part of its operations for the purpose of being nearer to your company since close proximity is important to the outsourcing relationship.	894.000	8397.000	-.195	.845
site2s:Your supplier has relocated the whole or part of its operations for the sole purpose of the outsourcing relationship with your company and, hence, this relocation has little value outside this relationship.	890.500	8393.500	-.231	.818
site3sYour supplier has relocated some of its operations or assets in order to improve its services towards your company.	857.000	977.000	-.490	.624

site4s:The outsourcing relationship requires your supplier to be located near your company.	865.000	8368.000	-.400	.689
dedi1s:Your supplier has made extra investments in order to expand its production capacity and to be able to meet your needs.	857.500	8360.500	-.412	.681
dedi2s:Your supplier has expanded its production capacity in the hope of a long-term relationship with your company.	818.500	8321.500	-.700	.484
dedi3s:Your supplier's sales to your company represent an important share of your supplier's total sales.	800.000	8303.000	-.808	.419
dedi4sR:Your supplier could easily re-sell extra output or make use of additional capacity in other applications outside the outsourcing relationship with your company.	820.000	8323.000	-.665	.506
dedi5s:Should your outsourcing relationship cease, your supplier would be left with substantial unsold output or excess capacity (e.g. extra staff).	834.000	8337.000	-.585	.559
dedi1b:For the purpose of the outsourcing relationship, your company has made additional investments that would result in excess capacity in the event of contract termination.	623.000	8126.000	-2.357	.018

dedi2b:For the purpose of the outsourcing relationship, your company has made additional investments in quality control facilities which are likely to result in excess capacity in the event of contract termination.	850.500	8353.500	-.514	.607
dedi3b:In order to cope with the 'weight' of the relationship with this supplier, your company has made additional investments in communication facilities that are likely to result in excess capacity in the event of contract termination.	865.000	985.000	-.378	.705
hr6sR: Your supplier could easily re-use any specific knowledge that is required in the relationship with your company (e.g. knowledge of the industry).	903.500	1023.500	-.080	.936
temp1b:The product or service provided by your supplier requires timely delivery.	582.000	8085.000	-2.392	.017
temp2b:In the relationship with your supplier, precise scheduling is very important.	626.000	8129.000	-2.045	.041
temp3b:Punctual delivery from your supplier is crucial; hence any delay will result in a significant cost to your company (e.g. loss of clients).	756.000	8259.000	-1.115	.265
temp4bR:In the event of delay from your supplier, your company can easily get the same product / service from another supplier.	889.000	8392.000	-.184	.854

brand1b:In the industry in which your company operates, you cannot afford receiving a low quality product or service from your supplier since this will negatively affect your own reputation.	806.000	8309.000	-.794	.427
brand2b:Given the importance of your company in the market, your supplier must do its utmost to maintain the quality of service provided to your company.	707.500	8210.500	-1.458	.145
brand3b: Any underperformance from your supplier will result in a highly negative effect on your company's reputation.	910.000	8413.000	-.035	.972
hr1s:Your supplier has customised its own workflows and routines to the peculiarities of your company.	861.500	8364.500	-.375	.708
hr2s:Your supplier faced initial difficulties in learning and adapting to your company's way of doing things.	895.000	1015.000	-.140	.889
procd1b:Your company has established procedures and routines tailored to the relationship with your supplier.	861.500	981.500	-.374	.708
procd2bR:The outsourcing relationship has entailed NO changes for your employees.	727.000	847.000	-1.315	.189

procd3b:The outsourcing relationship has entailed significant changes for the overall operations of your company.	886.500	1006.500	-.201	.841
procd4b:The outsourcing relationship has entailed significant restructuring and downsizing (e.g. redundancies) in your company.	891.500	1011.500	-.168	.867
collab1:Your company and the supplier have an extremely collaborative relationship.	770.500	890.500	-1.031	.303
collab2:Your company and the supplier share both short- and long-term goals.	715.000	835.000	-1.417	.156
collab3:No major disputes have so far taken place between your company and this supplier.	831.000	951.000	-.593	.553
collab4:When your company has queries in relation to the service or product provided, the supplier's employees promptly respond with accurate information.	787.500	8290.500	-.909	.363
collab5R:Your company and the supplier do NOT generally keep each other's promises.	771.500	8274.500	-1.052	.293
collab6:Your supplier is always willing to provide assistance to your company.	885.000	8388.000	-.218	.827

collab7R:Your company would be inclined to switch to an alternative supplier if the latter could provide a service comparable to the one offered by the current supplier at a slightly lower price.	751.000	871.000	-1.155	.248
Objec1:Outsourcing the activity of reference has allowed your company to concentrate own resources (e.g. staff) on core activities.	795.500	915.500	-.846	.398
Objec2:By outsourcing the activity your company has benefited from higher quality.	822.000	8325.000	-.656	.512
Objec3:By outsourcing the activity your company - via your supplier - has benefited from better access to skilled personnel.	763.500	883.500	-1.067	.286
Objec4:By outsourcing the activity, your company has benefited from greater scale economies achievable by your supplier.	837.000	957.000	-.554	.580
Objec5:By outsourcing the activity, your company has removed the need to invest in certain equipment (now under the governance of your supplier) and reduced the risk of technological obsolescence.	905.500	8408.500	-.066	.947
Objec6R:Your company has NOT achieved the target level of cost savings expected by outsourcing this activity.	828.000	8331.000	-.614	.539

Objec7:Overall, the objectives set by your company in relation to the outsourcing project have been met.	774.500	894.500	-1.004	.315
Satis1:Your company is very satisfied with the overall benefits obtained from outsourcing this activity.	872.000	992.000	-.304	.761
Satis2:You company is very satisfied with the quality of the service received in terms of consistency, timeliness and accuracy.	839.500	959.500	-.532	.595
Satis3:Your company is very satisfied with this supplier's responsiveness to problems or queries.	859.000	979.000	-.395	.693
Satis4:The service level received from this supplier has exceeded your company's expectations.	790.500	910.500	-.876	.381

a. Grouping Variable: Missing values Turnover

Appendix 5.5: Assessment of the randomness of the missing data in relation to "number of outsourcing projects values" Independent-samples t-test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
hr1b: Your company has recruited additional staff for the sole purpose of managing the outsourcing relationship.	Equal variances assumed	1.194	.276	-.473	135	.637	-.22333	.47198	-1.15675	.71010
	Equal variances not assumed			-.648	18.057	.525	-.22333	.34476	-.94747	.50082
hr2b: Your company has acquired new knowledge in order to adapt to the specific technological norms of your supplier.	Equal variances assumed	1.061	.305	.924	135	.357	.46774	.50610	-.53317	1.46866
	Equal variances not assumed			1.035	15.522	.317	.46774	.45203	-.49291	1.42840
hr3b: Your company has invested considerably in the training of personnel for the purpose of the relationship with your supplier.	Equal variances assumed	.951	.331	-.359	135	.720	-.18052	.50327	-1.17584	.81480
	Equal variances not assumed			-.425	16.081	.677	-.18052	.42498	-1.08106	.72001
hr3s: Your supplier has made a	Equal variances assumed	.125	.724	.027	135	.978	.01613	.59585	-1.16228	1.19454

	Equal variances not assumed			.026	14.417	.979	.01613	.61611	-1.30172	1.33397
hr4s: If you were to change your supplier, it would take a long time for a new supplier to serve you as well as the current one.	Equal variances assumed	.010	.920	-1.015	135	.312	-.56948	.56109	-1.67914	.54018
	Equal variances not assumed			-1.016	14.642	.326	-.56948	.56027	-1.76622	.62726
ph1b: Your company has invested in highly specialised equipment for the sole purpose of dealing with your supplier.	Equal variances assumed	.014	.905	.283	135	.778	.10360	.36601	-.62025	.82745
	Equal variances not assumed			.316	15.489	.756	.10360	.32811	-.59384	.80104
ph2b:A significant amount of your company's equipment would need to be scrapped should your outsourcing relationship with this supplier cease.	Equal variances assumed	5.572	.020	1.957	135	.052	.60856	.31102	-.00654	1.22366
	Equal variances not assumed			1.231	12.787	.240	.60856	.49431	-.46113	1.67826
ph1s:Your supplier has invested in highly specialised equipment and facilities that were required for the purpose of the relationship with your company.	Equal variances assumed	.904	.343	.481	135	.631	.23139	.48078	-.71944	1.18221
	Equal variances not assumed			.434	14.019	.671	.23139	.53357	-.91285	1.37563
ph2s:Your supplier has	Equal variances assumed	.594	.442	-.125	135	.900	-.05707	.45478	-.95648	.84234

	Equal variances not assumed			-.149	16.118	.883	-.05707	.38273	-.86794	.75379
site1s:Your supplier has relocated the whole or part of its operations for the purpose of being nearer to your company since close proximity is important to the outsourcing relationship.	Equal variances assumed	.579	.448	-.362	135	.718	-.18300	.50621	-1.18412	.81812
	Equal variances not assumed			-.425	15.992	.677	-.18300	.43104	-1.09680	.73079
site2s:Your supplier has relocated the whole or part of its operations for the sole purpose of the outsourcing relationship with your company and, hence, this relocation has little value outside this relationship.	Equal variances assumed	2.608	.109	-.840	135	.402	-.42990	.51163	-1.44175	.58195
	Equal variances not assumed			-1.226	19.272	.235	-.42990	.35060	-1.16302	.30321
site3sYour supplier has relocated some of its operations or assets in order to improve its services towards your company.	Equal variances assumed	.005	.942	-.028	135	.977	-.01613	.56993	-1.14328	1.11102
	Equal variances not assumed			-.033	15.962	.974	-.01613	.48668	-1.04805	1.01579
site4s:The outsourcing	Equal variances assumed	3.720	.056	.886	135	.377	.51489	.58136	-.63486	1.66464

	Equal variances not assumed			.712	13.511	.488	.51489	.72269	-1.04040	2.07017
dedi1s:Your supplier has made extra investments in order to expand its production capacity and to be able to meet your needs.	Equal variances assumed	.005	.944	1.369	135	.173	.71092	.51945	-.31639	1.73822
	Equal variances not assumed			1.358	14.580	.195	.71092	.52353	-.40776	1.82959
dedi2s:Your supplier has expanded its production capacity in the hope of a long-term relationship with your company.	Equal variances assumed	.902	.344	1.562	135	.121	.89330	.57194	-.23783	2.02443
	Equal variances not assumed			1.417	14.056	.178	.89330	.63022	-.45789	2.24449
dedi3s:Your supplier's sales to your company represent an important share of your supplier's total sales.	Equal variances assumed	2.279	.133	1.766	135	.080	.89454	.50643	-.10703	1.89611
	Equal variances not assumed			1.427	13.529	.176	.89454	.62670	-.45400	2.24308
dedi4sR:Your supplier could easily re-sell extra output or make use of additional capacity in other applications outside the outsourcing relationship with your company.	Equal variances assumed	.628	.430	-.008	135	.994	-.00397	.49904	-.99091	.98297
	Equal variances not assumed			-.008	15.031	.993	-.00397	.47235	-1.01057	1.00263
dedi5s:Should your outsourcing	Equal variances assumed	.423	.516	.873	135	.384	.48015	.55014	-.60787	1.56816

	Equal variances not assumed			.954	15.313	.355	.48015	.50309	-.59025	1.55055
dedi1b:For the purpose of the outsourcing relationship, your company has made additional investments that would result in excess capacity in the event of contract termination.	Equal variances assumed	1.371	.244	-.871	135	.386	-.31266	.35916	-1.02297	.39766
	Equal variances not assumed			-1.074	16.556	.298	-.31266	.29102	-.92790	.30259
dedi2b:For the purpose of the outsourcing relationship, your company has made additional investments in quality control facilities which are likely to result in excess capacity in the event of contract termination.	Equal variances assumed	.085	.771	-.099	135	.921	-.04094	.41389	-.85949	.77760
	Equal variances not assumed			-.104	14.981	.919	-.04094	.39430	-.88147	.79958
dedi3b:In order to cope with the 'weight' of the relationship with this supplier, your company has made additional investments in communication facilities that are likely to result in excess capacity in the event of contract termination.	Equal variances assumed	.279	.599	.886	135	.377	.39702	.44793	-.48885	1.28289
	Equal variances not assumed			.902	14.754	.381	.39702	.44008	-.54234	1.33639
temp1b:The product or service	Equal variances assumed	2.702	.103	.609	135	.544	.32940	.54131	-.74113	1.39994

	Equal variances not assumed			.714	15.978	.486	.32940	.46157	-.64920	1.30800
temp2b:In the relationship with your supplier, precise scheduling is very important.	Equal variances assumed	.573	.451	.318	135	.751	.16687	.52403	-.86949	1.20324
	Equal variances not assumed			.373	15.958	.714	.16687	.44765	-.78231	1.11606
temp3b:Punctual delivery from your supplier is crucial; hence any delay will result in a significant cost to your company (e.g. loss of clients).	Equal variances assumed	.007	.933	-.590	135	.556	-.34491	.58445	-1.50077	.81094
	Equal variances not assumed			-.555	14.252	.587	-.34491	.62129	-1.67523	.98540
temp4bR:In the event of delay from your supplier, your company can easily get the same product / service from another supplier.	Equal variances assumed	.025	.875	.138	135	.891	.08065	.58477	-1.07586	1.23715
	Equal variances not assumed			.129	14.220	.899	.08065	.62523	-1.25841	1.41970
brand1b:In the industry in which your company operates, you cannot afford receiving a low quality product or service from your supplier since this will negatively affect your own reputation.	Equal variances assumed	.827	.365	-.392	135	.696	-.19975	.50990	-1.20819	.80868
	Equal variances not assumed			-.478	16.425	.639	-.19975	.41770	-1.08337	.68387
brand2b:Given the importance	Equal variances assumed	.784	.377	1.560	135	.121	.77667	.49794	-.20810	1.76145

	Equal variances not assumed			1.806	15.846	.090	.77667	.43003	-.13567	1.68902
brand3b: Any underperformance from your supplier will result in a highly negative effect on your company's reputation.	Equal variances assumed	2.723	.101	-1.488	135	.139	-.83313	.56003	-1.94069	.27444
	Equal variances not assumed			-1.285	13.814	.220	-.83313	.64821	-2.22516	.55891
hr1s:Your supplier has customised its own workflows and routines to the peculiarities of your company.	Equal variances assumed	.016	.900	.312	135	.755	.16625	.53213	-.88613	1.21864
	Equal variances not assumed			.305	14.467	.765	.16625	.54582	-1.00088	1.33339
hr2s:Your supplier faced initial difficulties in learning and adapting to your company's way of doing things.	Equal variances assumed	.968	.327	.881	135	.380	.48139	.54621	-.59885	1.56163
	Equal variances not assumed			.981	15.467	.342	.48139	.49085	-.56209	1.52487
procd1b:Your company has established procedures and routines tailored to the relationship with your supplier.	Equal variances assumed	1.833	.178	.326	135	.745	.18548	.56925	-.94032	1.31128
	Equal variances not assumed			.346	15.069	.734	.18548	.53622	-.95700	1.32797
procd2bR:The outsourcing relationship has entailed NO changes for your employees.	Equal variances assumed	.040	.843	-.677	135	.500	-.41563	.61392	-1.62979	.79852
	Equal variances not assumed			-.619	14.093	.546	-.41563	.67169	-1.85537	1.02411
procd3b:The outsourcing	Equal variances assumed	.067	.796	1.141	135	.256	.57134	.50053	-.41855	1.56123

	Equal variances not assumed			1.006	13.906	.332	.57134	.56818	-.64806	1.79074
procd4b:The outsourcing relationship has entailed significant restructuring and downsizing (e.g. redundancies) in your company.	Equal variances assumed	.499	.481	-.050	135	.960	-.02543	.51168	-1.03738	.98652
	Equal variances not assumed			-.054	15.245	.958	-.02543	.47169	-1.02941	.97854
collab1:Your company and the supplier have an extremely collaborative relationship.	Equal variances assumed	.064	.801	.874	135	.384	.31700	.36276	-.40043	1.03443
	Equal variances not assumed			.907	14.899	.379	.31700	.34936	-.42809	1.06208
collab2:Your company and the supplier share both short- and long-term goals.	Equal variances assumed	2.433	.121	-.451	135	.653	-.18672	.41377	-1.00503	.63159
	Equal variances not assumed			-.373	13.616	.715	-.18672	.50112	-1.26437	.89092
collab3:No major disputes have so far taken place between your company and this supplier.	Equal variances assumed	.485	.487	.500	135	.618	.26365	.52766	-.77989	1.30719
	Equal variances not assumed			.526	14.998	.607	.26365	.50155	-.80539	1.33268
collab4:When your company has queries in relation to the service or product provided, the supplier's employees promptly respond with accurate information.	Equal variances assumed	1.714	.193	1.089	135	.278	.40199	.36903	-.32783	1.13180
	Equal variances not assumed			1.303	16.190	.211	.40199	.30854	-.25148	1.05545
collab5R:Your company and the supplier do NOT generally keep each other's promises.	Equal variances assumed	.537	.465	.200	135	.842	.06886	.34395	-.61136	.74908
	Equal variances not assumed			.224	15.525	.826	.06886	.30711	-.58380	.72151

collab6:Your supplier is always willing to provide assistance to your company.	Equal variances assumed	.194	.660	.981	135	.328	.34181	.34826	-.34693	1.03056
	Equal variances not assumed			.871	13.939	.399	.34181	.39264	-.50066	1.18429
collab7R:Your company would be inclined to switch to an alternative supplier if the latter could provide a service comparable to the one offered by the current supplier at a slightly lower price.	Equal variances assumed	.449	.504	-.361	135	.719	-.18300	.50745	-1.18658	.82057
	Equal variances not assumed			-.387	15.148	.704	-.18300	.47328	-1.19091	.82491
Satis1:Your company is very satisfied with the overall benefits obtained from outsourcing this activity.	Equal variances assumed	1.215	.272	.814	135	.417	.33313	.40937	-.47648	1.14273
	Equal variances not assumed			.857	15.004	.405	.33313	.38882	-.49560	1.16185
Satis2:You company is very satisfied with the quality of the service received in terms of consistency, timeliness and accuracy.	Equal variances assumed	.254	.615	.870	135	.386	.38524	.44270	-.49030	1.26077
	Equal variances not assumed			.801	14.132	.436	.38524	.48089	-.64526	1.41573
Satis3:Your company is very satisfied with this supplier's responsiveness to problems or queries.	Equal variances assumed	.385	.536	1.769	135	.079	.72519	.40989	-.08545	1.53582
	Equal variances not assumed			1.770	14.636	.098	.72519	.40966	-.14987	1.60024
Satis4:The service level	Equal variances assumed	1.548	.216	1.650	135	.101	.68921	.41770	-.13687	1.51528

	Equal variances not assumed			1.704	14.858	.109	.68921	.40449	-.17366	1.55207
Objec1:Outsourcing the activity of reference has allowed your company to concentrate own resources (e.g. staff) on core activities.	Equal variances assumed	.392	.532	.318	135	.751	.12717	.39929	-.66250	.91685
	Equal variances not assumed			.358	15.568	.725	.12717	.35486	-.62681	.88115
Objec2:By outsourcing the activity your company has benefited from higher quality.	Equal variances assumed	.233	.630	1.599	135	.112	.60670	.37937	-.14358	1.35698
	Equal variances not assumed			1.721	15.177	.106	.60670	.35258	-.14405	1.35744
Objec3:By outsourcing the activity your company - via your supplier - has benefited from better access to skilled personnel.	Equal variances assumed	3.208	.076	1.371	135	.173	.57072	.41616	-.25231	1.39375
	Equal variances not assumed			1.910	18.357	.072	.57072	.29882	-.05620	1.19764
Objec4:By outsourcing the activity, your company has benefited from greater scale economies achievable by your supplier.	Equal variances assumed	.103	.749	-.757	135	.451	-.33995	.44928	-1.22849	.54859
	Equal variances not assumed			-.674	13.961	.511	-.33995	.50429	-1.42183	.74193
Objec5:By outsourcing the	Equal variances assumed	.030	.863	.698	135	.486	.37655	.53934	-.69010	1.44320

	Equal variances not assumed			.749	15.151	.465	.37655	.50284	-.69430	1.44740
Objec6R:Your company has NOT achieved the target level of cost savings expected by outsourcing this activity.	Equal variances assumed	3.787	.054	.341	135	.734	.13772	.40431	-.66188	.93732
	Equal variances not assumed			.427	16.760	.675	.13772	.32233	-.54309	.81852
Objec7:Overall, the objectives set by your company in relation to the outsourcing project have been met.	Equal variances assumed	1.443	.232	.791	135	.430	.25248	.31910	-.37860	.88356
	Equal variances not assumed			.825	14.933	.422	.25248	.30590	-.39978	.90474

Appendix 5.6: Correlation matrix in relation to the four items measuring the overall satisfaction of outsourcing buyers

Correlations

		Satis1:Your company is very satisfied with the overall benefits obtained from outsourcing this activity.	Satis2:You company is very satisfied with the quality of the service received in terms of consistency, timeliness and accuracy.	Satis3:Your company is very satisfied with this supplier's responsiveness to problems or queries.	Satis4:The service level received from this supplier has exceeded your company's expectations.
Satis1:Your company is very satisfied with the overall benefits obtained from outsourcing this activity.	Pearson Correlation	1	.891**	.869**	.750**
	Sig. (2-tailed)		.000	.000	.000
	N	137	137	137	137
Satis2:You company is very satisfied with the quality of the service received in terms of consistency, timeliness and accuracy.	Pearson Correlation	.891**	1	.886**	.787**
	Sig. (2-tailed)	.000		.000	.000
	N	137	137	137	137
Satis3:Your company is very satisfied with this supplier's responsiveness to problems or queries.	Pearson Correlation	.869**	.886**	1	.789**
	Sig. (2-tailed)	.000	.000		.000
	N	137	137	137	137
Satis4:The service level received from this supplier has exceeded your company's	Pearson Correlation	.750**	.787**	.789**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	137	137	137	137

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 5.7: Pearson correlation matrix in relation to buyers' realisation of outsourcing objectives

Correlations

		Objec1	Objec2	Objec3	Objec4	Objec5	Objec6R	Objec7
Objec1:Outsourcing the activity of reference has allowed your company to concentrate own resources (e.g. staff) on core activities.	Pearson Correlation	1	.560**	.672**	.200*	-.130	.422**	.638**
	Sig. (2-tailed)		.000	.000	.019	.130	.000	.000
	N	137	137	137	137	137	137	137
Objec2:By outsourcing the activity your company has benefited from higher quality.	Pearson Correlation	.560**	1	.739**	-.018	-.096	.432**	.584**
	Sig. (2-tailed)	.000		.000	.832	.266	.000	.000
	N	137	137	137	137	137	137	137
Objec3:By outsourcing the activity your company - via your supplier - has benefited from better access to skilled personnel.	Pearson Correlation	.672**	.739**	1	.133	-.075	.460**	.610**
	Sig. (2-tailed)	.000	.000		.120	.381	.000	.000
	N	137	137	137	137	137	137	137
Objec4:By outsourcing the activity, your company has benefited from greater scale economies	Pearson Correlation	.200*	-.018	.133	1	.202*	-.024	.144
	Sig. (2-tailed)	.019	.832	.120		.018	.779	.093
	N	137	137	137	137	137	137	137
Objec5:By outsourcing the activity, your company has removed the need to invest in certain	Pearson Correlation	-.130	-.096	-.075	.202*	1	-.130	-.136
	Sig. (2-tailed)	.130	.266	.381	.018		.130	.113
	N	137	137	137	137	137	137	137
Objec6R:Your company has NOT achieved the target level of cost savings expected by	Pearson Correlation	.422**	.432**	.460**	-.024	-.130	1	.586**
	Sig. (2-tailed)	.000	.000	.000	.779	.130		.000
	N	137	137	137	137	137	137	137
Objec7:Overall, the objectives set by your company in relation to the outsourcing project have	Pearson Correlation	.638**	.584**	.610**	.144	-.136	.586**	1
	Sig. (2-tailed)	.000	.000	.000	.093	.113	.000	
	N	137	137	137	137	137	137	137

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix 5.8: Correlation matrix of all items measuring both buyers' satisfaction and realisation of outsourcing objectives

Correlations

		Satis1	Satis2	Satis3	Satis 4	Objec 1	Objec 2	Objec 3	Objec 4	Objec 5	Objec 6R	Obje c7
Satis1.Your company is very satisfied with the overall benefits obtained from outsourcing this activity.	Pearson Correlation	1	.891**	.869**	.750**	.529**	.580**	.568**	.000	-.071	.579**	.692**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	1.000	.412	.000	.000
	N	137	137	137	137	137	137	137	137	137	137	137
Satis2.You company is very satisfied with the quality of the service received in terms of consistency, timeliness and accuracy.	Pearson Correlation	.891**	1	.886**	.787**	.525**	.623**	.590**	.022	-.082	.530**	.740**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.798	.342	.000	.000
	N	137	137	137	137	137	137	137	137	137	137	137
Satis3.Your company is very satisfied with this supplier's responsiveness to problems or queries.	Pearson Correlation	.869**	.886**	1	.789**	.544**	.592**	.621**	.013	-.110	.485**	.712**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.876	.201	.000	.000
	N	137	137	137	137	137	137	137	137	137	137	137
Satis4.The service level received from this supplier has exceeded your company's	Pearson Correlation	.750**	.787**	.789**	1	.533**	.598**	.538**	-.033	-.126	.460**	.714**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.701	.141	.000	.000
	N	137	137	137	137	137	137	137	137	137	137	137
Objec1:Outsourcing the activity of reference has allowed your company to concentrate own	Pearson Correlation	.529**	.525**	.544**	.533**	1	.560**	.672**	.200*	-.130	.422**	.638**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.019	.130	.000	.000
	N	137	137	137	137	137	137	137	137	137	137	137
Objec2.By outsourcing the activity your company has benefited from higher quality.	Pearson Correlation	.580**	.623**	.592**	.598**	.560**	1	.739**	-.018	-.096	.432**	.584**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.832	.266	.000	.000
	N	137	137	137	137	137	137	137	137	137	137	137
Objec3 By outsourcing the activity your company - via your supplier - has benefited from better	Pearson Correlation	.568**	.590**	.621**	.538**	.672**	.739**	1	.133	-.075	.460**	.610**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.120	.381	.000	.000
	N	137	137	137	137	137	137	137	137	137	137	137
Objec4 By outsourcing the activity, your company has benefited from greater scale economies	Pearson Correlation	.000	.022	.013	-.033	.200*	-.018	.133	1	.202*	-.024	.144
	Sig. (2-tailed)	1.000	.798	.876	.701	.019	.832	.120		.018	.779	.093
	N	137	137	137	137	137	137	137	137	137	137	137
Objec5.By outsourcing the activity, your company has removed the need to invest in certain	Pearson Correlation	-.071	-.082	-.110	-.126	-.130	-.096	-.075	.202*	1	-.130	-.136
	Sig. (2-tailed)	.412	.342	.201	.141	.130	.266	.381	.018		.130	.113
	N	137	137	137	137	137	137	137	137	137	137	137
Objec6R.Your company has NOT achieved the target level of cost savings expected by	Pearson Correlation	.579**	.530**	.485**	.460**	.422**	.432**	.460**	-.024	-.130	1	.586**
	Sig (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.779	.130		.000
	N	137	137	137	137	137	137	137	137	137	137	137
Objec7.Overall, the objectives set by your company in relation to the outsourcing project	Pearson Correlation	.692**	.740**	.712**	.714**	.638**	.584**	.610**	.144	-.136	.586**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.093	.113	.000	
	N	137	137	137	137	137	137	137	137	137	137	137

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0 05 level (2-tailed).

Appendix 6.1: The remaining interaction terms in relation to reciprocal investments

	b	SE	Beta	Sig
Humb*HumS	-.026	0.38	.051	.506
DediB*DediS	.012	.037	.027	.736
HumBDediS	.004	.036	.009	.918
DediB*SiteS	-.032	.037	-0.75	.380
TempB*HumS	.003	.037	.007	.931
ProcdB*DediS	-.002	.037	.-.005	.949
BrandB*DediS	-.045	.039	-.107	.253
HumB*SiteS	.080	.043	.109	.168
ProcdB*HumS	.046	.040	.090	.249
ProcdB*SiteS	.011	.038	.023	.766
BrandB*HumS	.071	.043	.137	.101
BrandB*SiteS	.067	.054	.147	.212